

Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Vol. IX.

CHICAGO, ILL., JANUARY 22, 1910.

NO. 7.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydrated" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

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Birmingham, Ala.

Atlanta, Ga.

New Orleans, La.

DEXTER

Portland Cement
THE NEW STANDARD

Sole Agents: **SAMUEL H. FRENCH & CO.** Philadelphia



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UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE

FIRE BRICK

GOVERNMENT STANDARD.

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

**Lime Kiln and
Cement Kiln
Construction**

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

**UNION MINING CO.,
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CAPACITY, 60,000 PER DAY.
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Phoenix Portland Cement UNEXCELLED FOR ALL USES.
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Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO., . . . Ottawa, Ill.



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FOR GRIFFIN,
TUBE AND
BALL MILLS

Chicago Belting Co.

CHICAGO, PHILADELPHIA, PORTLAND, ORE., NEW ORLEANS.

MAKERS OF **Leather Belting**

BEST BELT
FOR
DAMP
PLACES



ALMA Portland Cement

STANDARD BRAND
OF
MIDDLE WEST.

Specially adapted to all Reinforced Concrete and High-Class Work.

ALMA CEMENT CO.
WELLSTON, OHIO.

How do you figure your Lime Kiln, Rotary Cement Kiln and other furnace expenses and charges for Refractories?
By the cost of the BRICK, or by the length of the service they will give?

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SILICA
MAGNESIA
CHROME } **Brick**

Are made of the highest grade raw materials under expert supervision, in modern up-to-date works, and are worth more because better than others. They last longer and are more economical. You can prove this statement in your own works by sending us a trial order. Information, records and prices on request.

Harbison-Walker Refractories Co.
LARGEST CAPACITY PITTSBURG, PA. PROMPT SHIPMENTS

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A PERFECT RECORD FOR TEN YEARS
IN ALL KINDS OF CONCRETE WORK

Send for 72 page Illustrated Catalog No. 25

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Marquette Building, Chicago





Peninsular Portland Cement

Acknowledged by competent Architects and Engineers to be unequalled for fineness, wonderful development of strength and sand carrying capacity.

"THE BEST IS THE CHEAPEST"

Address
Peninsular Portland Cement Co.
Jackson, Michigan



Strength Uniformity Satisfaction

A Dependable Portland Cement

An Unblemished Record for
six years speaks for itself

Wolverine Portland Cement Company
Coldwater, Michigan

W. E. COBEAN, Agent, Chamber of Commerce Building, Chicago

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Stone Crushing, Cement and Power Plants

—Ask—
CHICAGO GRAVEL CO., - Chicago, Ill.
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PETERSON & WRIGHT, - Akron, Ohio
SOUTHERN G. & M. CO., Brook Haven, Miss.
About Their Plants

J. C. Buckbee Company, Engineers, CHICAGO

"LEHIGH" PORTLAND CEMENT

High Tensile Strength, Finely Ground
Light and Uniform in Color.
Manufactured by the



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Write for Catalogue

Capacity, 8,000,000 Yearly.

Red Ring Portland Cement



Manufacturers: Sales Office Liggett Bldg. St. Louis

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"CHICAGO AA"

1,250,000 Barrels Annually

HIGHEST QUALITY
"THE BEST THAT CAN BE MADE"

"Chicago AA" Portland Cement is best adapted for use in making concrete because of its absolute uniformity, fineness, prompt hardening and attractive color. "Chicago AA" is second to none, and every barrel is fully guaranteed to meet the requirements of the Standard Specifications.

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108 La Salle St.

Booklets on Request.

Chicago, Ill.

The Waterproofing That Waterproofs

"Te-Pe-Co," the No-Oil Mineral Liquid Compound, makes all kinds of concrete and masonry waterproof for all time. Don't fail to see our exhibit at the Cement Show.

"Te-Pe-Co" is the one reliable waterproofing compound for cement and concrete work. It is a scientific combination of mineral and chemical substances. It comes to you all ready for use. You run no risk of spoiling it by wetting it or mixing it with something else.

"TE-PE-CO"
EVERLASTING
WATERPROOFING

Simply stir it, take an ordinary paint brush and apply it. No expert needed. In its liquid form it will seep deeply into the pores of the concrete, brick or stone. Then, in a few hours the liquid will evaporate, leaving only the mineral substance to dry out and harden in the pores, thus closing them forever. With the pores of concrete and masonry closed, moisture can never enter in. That's all that any waterproofing solution pretends to do—simply closes the pores. Oil will close them for a time. Wax will close them for a time. Grease will close them for a time. But a mineral that has filled them and hardened in them will close them for all time. "Te-Pe-Co" is such a mineral.

REMARKABLY LOW COST

It costs only 1/4 of a cent to waterproof a square foot of surface. That's the first cost and the last. There is no after expense—no "doing it all over again" at the end of a year or two. Once make a structure waterproof with "Te-Pe-Co," and it will remain so until the structure is destroyed.

SEND FOR SAMPLE

Write to-day for particulars, prices and evidence in abundance—or, better still, send us \$1.00 and we will ship one sample gallon of "Te-Pe-Co," the regular price of which is \$1.50 (for single gallon).

The National Water-Proof Co.

663 Harvester Building
Chicago, Ill.



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Volume IX.

CHICAGO, ILL., JANUARY 22, 1910.

Number 7.

PERMANENT PARK IMPROVEMENTS.

Reinforced Concrete as Used in Lincoln Park, Chicago, Solves the Old Problem of Heavy Repair and Replacement Costs in Many of the Indispensable Features of Its Equipment.

"Park architecture" is almost a new term, but it is one that has been used more frequently during the past few years as the park idea has taken hold of American cities. The work for civic betterments in all lines, which is now a feature of the life of every municipality of the United States, has in all cases included the parks, as the need for a breathing-spot for the people of the crowded places became manifest; and so more thought and study and time and labor have been expended upon improving park facilities since 1900 than during the previous quarter of a century.

The first idea of a park was merely to set aside a certain area, where no buildings should be erected, and where people could go, sit upon the benches and hear the birds sing. Later on efforts were taken up with regard to improving the roadway in the parks, and it is in these that some of the best examples of highways have been developed. Following this came the demand for better equipment of all kinds; for shelter-houses, boat-houses, even restaurants; and so it is that the parks of today combine not only the beauties of nature, but modern devices to make them of the greatest use to the greatest number of people.

It is an interesting fact that in the improvement of parks everywhere reinforced concrete has been the type of construction most generally used. Experiments have shown, conclusively, that it answers the purpose better than any other material, and adapts itself to a greater variety of uses than anything else. The result has been that one sees not only houses and bridges, but fence posts, lamp posts, fountains, benches and balustrades made of reinforced concrete in every modern park.



TYPE OF REINFORCED CONCRETE SETTEE IN LINCOLN PARK, CHICAGO.

Lincoln Park, Chicago, is one of the finest public parks in the world. It has done more work of the kind indicated than any other in the country, and has crowded into the past five years a splendid lot of improvements. In nearly every case reinforced concrete has been the material adopted, and Arthur Lewis, the chief engineer of the Lincoln Park commission, is convinced that in it he has found the ideal material exactly suited for park purposes.

"Reinforced concrete," he told a representative of ROCK PRODUCTS, "is necessary in many cases and desirable in nearly all. Frequently we put up buildings which are worked into the landscape by topping them with earth. When that is done, the load which they must carry practically demands concrete. In other cases economy, not necessarily in the initial cost, but with regard to maintenance and wear, suggest it as best suited to our particular needs. This is why, with one exception, every building in Lincoln Park is made of reinforced concrete. In that case, even, the foundations, floors, sills and other supporting parts are of concrete."

Although Mr. Lewis is a young man, he has been chief engineer of the Lincoln Park commission for four years and in its service for five. This means that he has carried out the big improvement plans along one definite line of ideas. Mr. Lewis adds that the future work to be done at the park will be largely of reinforced concrete. In fact, he is a real concrete enthusiast.

An insight into the success of the Lincoln Park work is given by the statement that a carpenter shop is maintained, where forms are fabricated for the various pieces of work. Inasmuch as all sorts of ornamental work is turned out, necessitating a good deal of band-sawing in the making of the forms, this is an important part of the plant. Another good point is that all of the concrete work has been done by men employed by the park, who have been kept at it for several years and are therefore experts in it.

(Continued on page 46.)



LAGOON IN LINCOLN PARK, CHICAGO. CONCRETE FENCE POSTS CARRY THE WIRE NETTING GUARD ON BOTH SIDES.

POWER AND MINING MACHINERY COMPANY

Crushing Machinery

The
Original
of the
Gyratory
Type of
Crushers



Preferred and
used by
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Largest
Contractors
and the U. S.
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WITH MAMMOTH McCULLY CRUSHERS LEADING

in point of sales month by month—steadily and surely forging ahead and outdistancing all attempted competition. We have attained the foremost position as manufacturers of crushing machinery of merit. Durability, efficiency, economy, because of correct design and construction, appeal to the most exacting—and they are our best customers.

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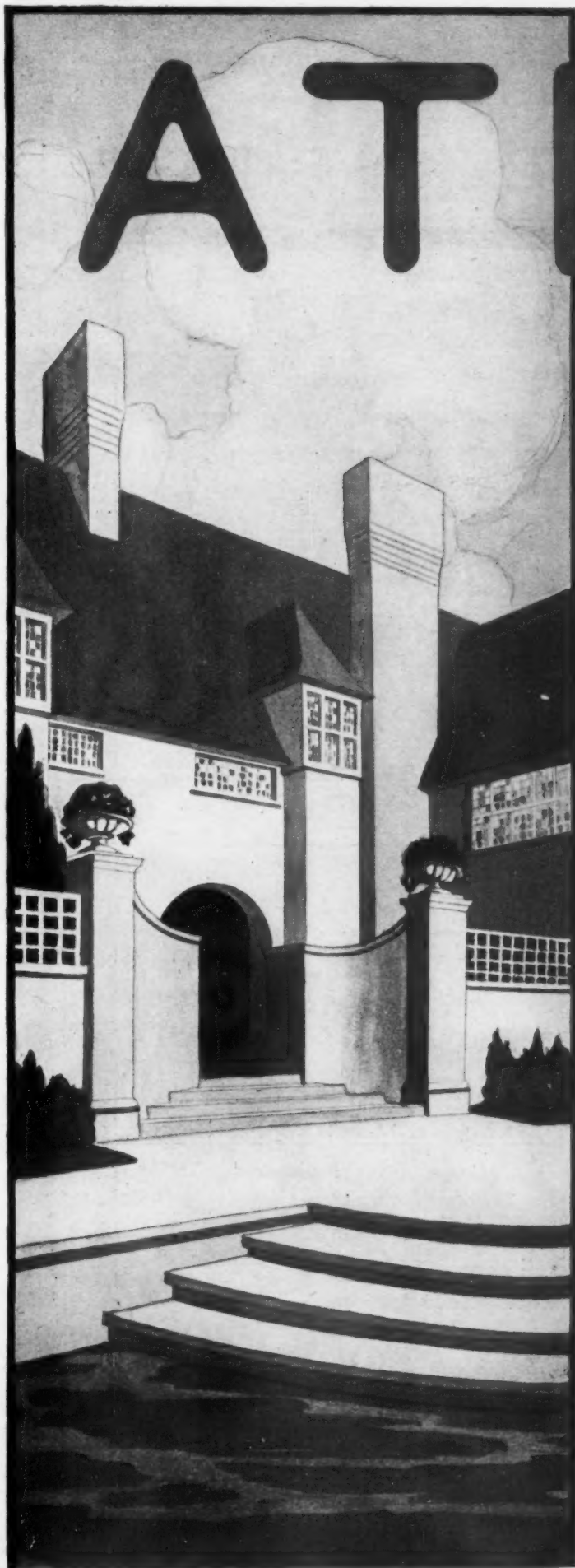
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CEMENT LIBRARY

"Concrete Houses and Cottages." Vols. 1 and 2.

These books contain many half-tone cuts (in tints) of photographs together with floor plans of concrete houses ranging in price from \$1,000.00 to \$450,000.00.

The houses not only show a large variety of designs, but are of several different methods of concrete construction. They are not imaginary sketches, but have been built and designed by the best architects in the country. Vol. 1, Large Houses; Vol. 2, Small Houses. Size, 10x12 inches. Copies will be sent, express prepaid, upon receipt of \$1.00 per volume.

"Concrete Country Residences" (out of print.)

Price \$2.00.

"Concrete Cottages."

A sixteen-page pamphlet showing photographs, floor plans and specifications for small concrete houses ranging in cost from \$1,500.00 to \$4,000.00. Copies free upon request.

"Concrete Construction About the Home and on the Farm."

The 1909 edition of this book contains many half-tone cuts from photographs showing several new and practical uses of Portland Cement about the home and on the farm, besides full directions for making and handling concrete; also many specifications, sectional drawings and photographs of the smaller constructions that can be built by the layman. Copies sent free upon request. Cloth bound copies, 25 cents.

"Reinforced Concrete in Factory Construction."

A book containing besides several general chapters on concrete, concrete aggregate, methods and materials for reinforcement, ten chapters, giving detail descriptions of ten concrete factories and warehouses erected in various parts of the country by different systems. Photographs, sectional drawings and specifications were furnished by the engineers in charge of the work. Paper copies, delivery charges, 10 cents. Cloth bound copies, 50 cents.

"Concrete in Railroad Construction."

A text-book for railway engineers, containing detailed descriptions, drawings and many photographs of railway construction in which concrete is used. This book will be sent free to railroad officials, engineers and contractors. Price, \$1.00.

"Concrete in Highway Construction."

A text-book for highway engineers and supervisors. It contains complete descriptions, drawings and photographs of every phase of highway construction in which concrete plays a part. It is the most valuable book ever published on this subject. Sent free to engineers, architects, contractors and highway officials. Price, \$1.00.

"Concrete Garages."

A valuable book for any one contemplating the construction of a garage. It contains photographs of many fireproof concrete garages, together with sectional drawings and detailed descriptions as to how they may be constructed. Sent free upon request.

Atlas Portland Cement is made from genuine portland cement rock; the cement that is always pure and uniform and made only in one grade; the cement that makes the best concrete; the cement of which the U. S. government bought 4,500,000 barrels for use in building the Panama Canal.

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Daily productive capacity over 50,000 barrels—the largest in the world.

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"The Best That Can Be Made"

DEALERS and CONTRACTORS desiring to give their customers and clients the highest possible quality—always uniform, always better than the standard specifications, always prompt setting and hardening, always beautiful color, always of high strength and sand carrying capacity, always sound and always reliable, always recommend

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We have largely increased our capacity and shipping facilities, insuring continuation of the superb service given our customers in 1909—Annual production now 1,250,000 barrels.

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State Normal School,	De Kalb, Ill.	Raikes Friedman Co., Factory Building,	Chicago, Ill.
State Normal School,	Whitewater, Wis.	Emerson Manufacturing Co., Factory Bldg.	Rockford, Ill.
Pumping Station,	Kansas City, Kans.	Lewis Knitting Co., Factory Building,	Janesville, Wis.
Government Naval Training Station,	North Chicago, Ill.	Marsh Place Co., Factory Building,	Waterloo, Ia.
Cook County Infirmary,	Oak Forest, Ill.	Griswold Wire Works, Factory,	Sterling Ill.
City Concrete Sewer,	Waterloo, Ia.	Bradley Knitting Co., Factory,	Delavan, Wis.
Wesley Hospital Addition,	Chicago, Ill.	Moline Plow Co., Factory Building,	Rock Island, Ill.
Denkman Memorial Library,	Rock Island, Ill.	Malleable Iron Range Co., Factory,	Beaver Dam, Wis.
Carson, Pirie Scott & Co., (Reinforced Concrete Warehouse)	Chicago, Ill.	Avery Manufacturing Co., Office Bldg.	Peoria, Ill.
Northwestern Malt & Grain Co., (Reinforced Concrete Grain Elevator)	Cragin, Ill.	Chicago Title & Trust Co. (Office Building)	Chicago, Ill.
Cosmopolitan Electric Co., Power House, Chicago, Ill.		Minnesota & Ontario Power Co. (Power Plant)	International Falls, Minn.
		C. B. & Q. Ry.	

There is a heap of satisfaction in getting the quality you can sell to your friends and retain their friendship; that is the kind of business we are after—business that we can have year after year. We can always strain a point to increase our capacity to take care of your order and the quality will always be the same, "THE BEST THAT CAN BE MADE"

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Your Cement Needs Can Be Supplied Efficiently

Daily Capacity of 8,000 Barrels. Write today to

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DAILY CAPACITY, 6000 BARRELS



The best technical and practical skill, backed up by an experience of years, operating the most modern plant in the country on the highest grade of raw materials, justifies our claim that

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Pennsylvania Portland

Stands for Quality



See the
AQUABAR

Waterproofing Exhibit
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**The Wisconsin Lime
& Cement Company**

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Are Selling and Distributing Agents

This means that IT IS the BEST and SUREST
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PORTLAND CEMENT WORKS**

Booth No. 141

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WORKS: La Salle, Illinois



Use the
BAY STATE
Brick and
Cement
Coating
to Protect
Concrete
Against the
Ravages of
Dampness

THIS coating becomes a part of the material itself and will give concrete, stucco, brick or plaster any shade desired as well as protect it against moisture.

It does not destroy the desirable distinctive texture of concrete.

It can be used as a floor coating on cement floors, on the exterior of mills and factories; on the interior of subways or cellars, where dampness would preclude other paint; on public or private buildings of every description.

It will not chip or flake off and thus is a perfect coating or tint for overhead factory work where delicate machinery is used.

Its durability and fire-proof qualities make it particularly desirable not alone on stucco, concrete or plaster, but also on wooden partitions.

It comes in twenty-four beautiful shades ranging from pure white to dark green. It gives a dull finish and is more economical than lead and oil or cold water paints.

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**WADSWORTH
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Paint and Varnish Makers
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"LIMOID"

used in all
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Terra Cotta
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Executive Offices
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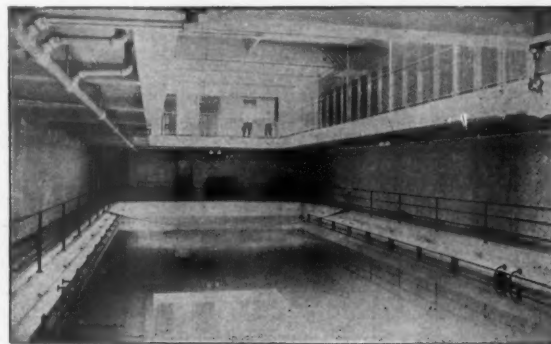


Medusa Water-Proof Compound

(Patented April 23, 1907)

**Makes all Concrete Watertight
It Is Not a Wash**

Write for pamphlet describing its use. Do not accept a substitute, as there are many adulterated compounds on the market.



Soulard Public Bath House, St. Louis, Mo.

Pool, floors, steps and walls surfaced with Medusa Pure White Stainless Portland Cement, containing Medusa Waterproof Compound.

Sample of our Pure White Portland Cement sent on request.

Obtain our price on Medusa Portland. Annual Capacity 1,500,000 bbls.

Sandusky Portland Cement Co.
SANDUSKY, OHIO

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THE CHICAGO & NORTHWESTERN RAILWAY TERMINAL STATION, CHICAGO.
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All the foundations of this station were treated with, and made absolutely waterproof by,

The Perfect Waterproofer **DEHYDRATINE**

For dampproofing inner walls and isolating plaster from exterior masonry. Takes the place of furring and lathing, or can be used in conjunction therewith.

For stainproofing and dampproofing Limestone, Marble and Granite, thereby dispensing with the use of non-staining cements.

For dampproofing underground masonry, vault arches, brick walls, etc.

HYDRATITE **SYMENTREX**

(Dry Compound.) The integral method of *Waterproofing Concrete*, making it absolutely impervious.

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GEORGE W. DE SMET

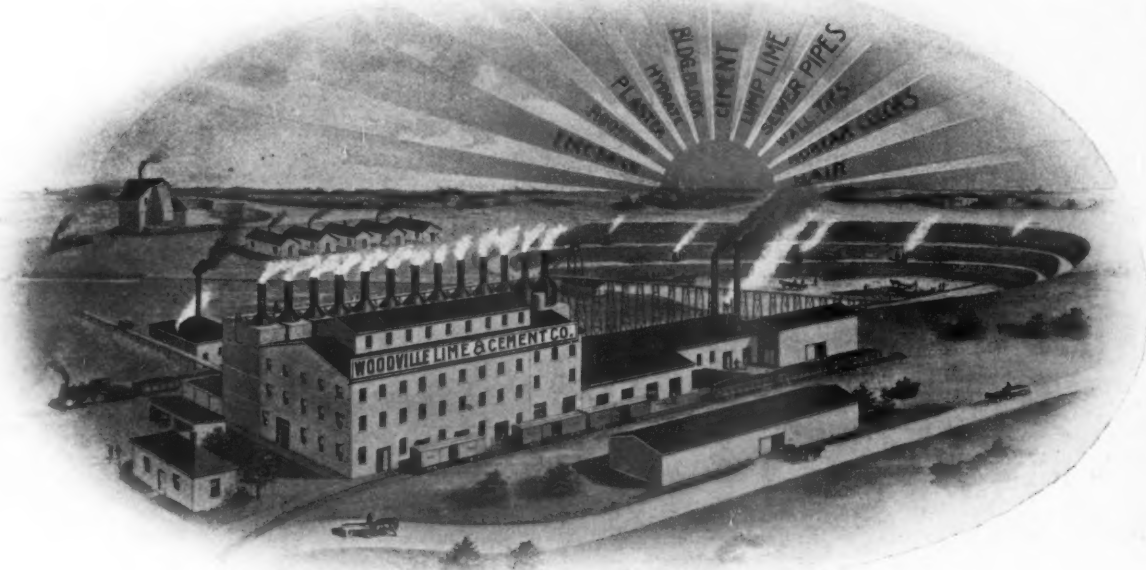
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The Best Waterproofing on the Market

The Salvation of the Cement Block business depends on a
Reliable, Cheap Waterproofing

We have it. Costs but 15 cents per gallon.

Formula (shop right) for sale.

Send for information and sample stone treated with this process.

Rex Cement Stone Waterproofing Company
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The Perfect Waterproofing for All Kinds of Concrete Work

Thoroughly demonstrating experiments prove that this waterproofing preparation is the most economical and efficient thing of the kind ever offered on the market. It is permanent and constant in colors of the finished product, because it is made of natural materials of basic character that are unchanging. Permanent as the rock of ages. Quotations in any quantity.

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PEIRCE CITY WHITE LIME

THE QUALITY LIME

Brings prosperity to those who buy it, because it is the whitest, purest and strongest lime in the world, and sure to give satisfaction. Our barrels are made of the best cooperage, bound by steel hoops that do not break. Write us at once for prices.

PEIRCE CITY LIME CO.

Peirce City, Mo.

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A. & C. STONE AND LIME CO.

CAPITAL, \$250,000.00

3 CRUSHING PLANTS=8 CRUSHERS

CAPACITY, 4,000 CUBIC YARDS DAILY

GREENCASTLE, RIDGEVILLE & PORTLAND, IND.

CRUSHED STONE, ALL SIZES

All Plants Strictly Modern Up-To-Date

Railroad Connections: VANDALIA | G. R. & I. | MONON
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PURE WHITE LIME

Made at our Portland Plant burned with Natural Gas, 5,000 bushels used weekly in Indianapolis trade.

WRITE US NOW

WRITE US WHEN IN NEED

WRITE US ANY TIME

General Office: INDIANAPOLIS

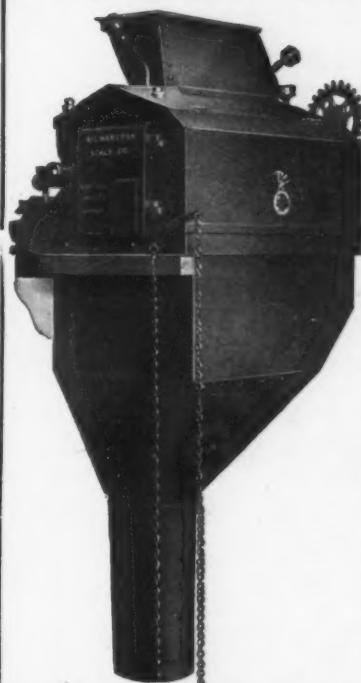
Mr. Lime Manufacturer:

Do you know that every lime plant that employs the BATES SYSTEM of bagging their lime is doing it at a LESS COST than you do if you do not employ that SYSTEM? IT'S A FACT. Nearly all of them are employing it too.

Try our lime, cement and plaster sacks. They are giving universal satisfaction. We know how to make them and we GUARANTEE the quality.

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Valve Bag Co.** TOLEDO,
OHIO

Automatic Cement Bagging



The Richardson Automatic Bagger weighs 5 to 6 bags of Cement per minute with a guaranteed accuracy of within one-half pound per bag.

**Simple,
Practically Dustless.**

No expense beyond initial outlay.

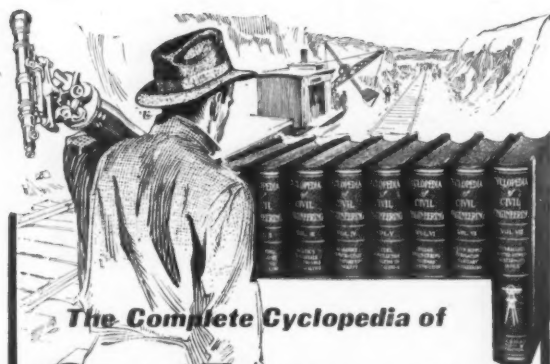
With this machine you don't give away cement in overweights, nor get complaints from contractors for short weights.

Average weight put in bag, exactly 95 lbs.

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is always on the job. It contains more up-to-date, accurate, money saving information on reinforced concrete, irrigation, water supply and water power development than you can get in any other book or set of books. It is especially adapted

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Manufacturers, Chemists,
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Prices Cheerfully Submitted

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Sole Manufacturers of **LIMATE** The first and best Hydrated Lime in the market

In tensile strength for stone and brick Limate has no Equal!
laying and adhesive strength for plastering

The thirteen lime plants of

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Have a total lime producing
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Materials. Correspondence respectfully solicited

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Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

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The Best for Every Purpose where Chemically Pure Lime Is the Indispensable Element

Sand Lime Brick Difficulties can be Simplified and Overcome
by the use of our Correctly Hydrated Lime.

Cement Blocks can be made more waterproof, cheaper, and of lighter color by the use of from 20 to 40% of pure hydrate, free from
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Many of these kilns, with daily outputs ranging from one to fifty tons per day, have been built in Germany, Austria, England, Russia and other European countries, also in America, Africa and Australia. Greatest economy in fuel and labor; very simple in operation, high class product, natural draft, all kinds of fuel, hard and soft coal, lignite, peat, wood and wood refuse. Best references.

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If Monarch Hydrated Lime wasn't better or cheaper than lump lime nobody would buy it. As a matter of fact it is both.

Monarch Hydrated Lime costs less delivered, can be thoroughly soaked in twenty-four hours, doesn't have to be screened, carries more sand, gauges with a third less plaster, spreads further and easier and will not air slack.

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We also crush stone for all purposes.

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National Lime & Stone Co.
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The Potter Blackboard Material.

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CRUSHED, GROUND AND BOLTED SOAPSTONE.

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C. P. DODGE, Proprietor.

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CHEMICAL LIME

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For Full Particulars Address

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I. C. R. R. CO.

No. 1 PARK ROW, CHICAGO

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SCIOTO LIME & STONE CO.,

Delaware, O.

"If it is Lime,
We make it."

Banner Hydrate Lime

Manufactured at Gibsonburg, Ohio, by the

National Mortar & Supply Company

Offices: Pittsburgh, Pa.

Daily capacity 150 tons

Ask for information

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Gas Process for Burning Lime.

Four and three quarter pounds of lime to one pound of coal on a large output is now being secured every day.

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For extra heavy and solid blasting use our 1910 Special Quick Grade.

For Crushed Stone and Silica Sand Quarries, Contractors, Stump Blasting, Ore and Slag Shooting, Clay and Shale, Oil and Gas Wells, Etc.



After the Blast in the Quarry of The Franklin Industrial Co.,
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**Safer and Better
Than Dynamite.
Does Not Explode
by Overheating.
No Illness.**

Manufactured
by

The American Dynalite Co.

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"INDEPENDENT DYNAMITE—
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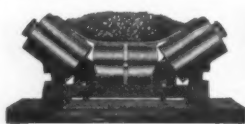
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NEW YORK

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The Cummer Continuous Gypsum
See Other Advertis-
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& SON CO.,
Cleveland, Ohio

Seven plants in successful operation producing about 1,500 tons per day.

THE WINANT COOPERAGE CO.

Staves, Hoops and Heading for Lime,
Cement and Plaster Barrels

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manufacturers of lime and
cement, dealers in builders'
supplies; under date of Octo-
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Farrington Expansion Bolts



The most secure fastening in concrete as well as in stone.
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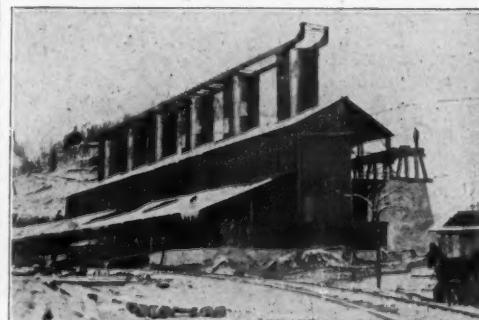
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OF ALL SHADES

CORRESPONDENCE SOLICITED. SAMPLES AND ESTIMATES
CHEERFULLY FURNISHED ON APPLICATION.



Lime Kilns and Plant of Blair Limestone Co.,
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Designed by

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Company

42 N. 16th Street

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Tell 'em you saw it in ROCK PRODUCTS

Rock Products

ESTABLISHED IN LOUISVILLE, KY., 1902.

DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

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Communications on subjects of interest to any branch of the stone industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products his headquarters while in Chicago. Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....\$1.00
In the Dominion of Canada and all Countries in the Postal Union.....1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

Yes, there will be more cement made and used in 1910 than ever before. It looks like 70,000,000 barrels or more.

The year just before us is going to be to a great extent just what we make out of it. Let's coöperate and produce a hummer.

There is no longer any excuse for a complaint about the difficulties of waterproofing concrete. It is simple enough with a lot of engaging gentlemen who are ready to expound their waterproofing materials.

When a man thinks he knows all there is to be found out about his business, it is up to him to compare notes with others in his line to find out how much the other fellow knows. It is often surprising.

Concrete tile, the newest and most interesting feature in the manufactured commodities of cement came up with a bright and shining record of accomplishment in the year that has just passed.

The eleventh annual convention of the National Builders' Supply Association will be held at the Auditorium Annex in Chicago, February 23-24. Every retailer ought to be a member, and those who do not accept this suggestion will be sorry losers.

If the retailer of building supplies thinks that he has got a right to be on earth, and to hold a place in the business world, it is up to him to say so. If he will speak right out in meeting he is sure to feel better about it himself and may say just the right thing if he speaks from the heart out.

Trade conventions are conducted by and for the leading men in their respective lines. You can tell whether you are a progressive man in your own line by the importance that you attach to the working of the organization that is devoting its efforts to build up the best interests of your business.

Retailers of supplies are in something of the same position that another memorable convention was in about the first day of July, 1776, when Doctor Franklin grimly remarked as he affixed his signature to the declaration, "Gentlemen, here is where we have all got to hang together, or we are pretty sure to hang separately." It won't take a mind reader to find the answer, either.

All of the men who are making a big success in the concrete industry have always been and are regular subscribers of Rock Products.

Scarcely a start has been made in the direction of studying the uses of plastic materials. It is a field that contains untold possibilities which can be worked out with great profit. The one drawback of foreign tongues in the heads of practical plasterers is the greatest present obstacle. Since the concrete industry has provided houses that cannot burn, the artistic features of the entrances can well be considered next.

Aggregates for concrete are receiving more study and attention as experience is gained by the men who are engaged in practical concrete work. Sand reclaiming and washing plants have become indispensable in many localities where this essential for every kind of concrete mixture is not provided by nature in proper shape. It is astonishing how few really good sands are to be had without some washing. Even then the separation of sizes is indispensable.

Don't forget, Mr. Contractor, that there is a whole lot of big work that has been held up for a long time, and a great deal of it has got to the place where it has to be commenced. If you load up with a grab away down cheap you will be sorry when the long, hot summer days come along. Nothing else is cheap—the average cost of living is something of a guide as to what labor will have to cost at least, and that is a pretty good barometer.

One thing is getting to be well defined as time goes on, and that is the difference between the faker with some clap-trap contrivances and the builder of real substantial apparatus and appliances for the profitable use of the cement user. Public exhibitions where comparative merits are made apparent help in this regard. Unfortunately, there are a few left, but their pickings are not good enough to keep them at it all the year around.

Crushed rock producers who are logically road contractors are keeping an ear on the ground for the developments that the experts of the government and others are working out in this important feature of public improvements. They realize that the actual building of the roads is pretty sure to be up to them anyway, as rock is prominently in every specification that anybody knows of to date. It is the only material plentiful enough to be generally available for road building upon a large scale.

Lime burning used to be considered any thrifty farmer's job, but that has all vanished in the things that are numbered with the past. It takes quite a considerable investment in these days to manufacture lime, even on a small scale, and at the same time have enough economy present to compete profitably for trade. Then again, good lime quarries are not so numerous as they were formerly supposed to be. One had better take a good look first before jumping in. The old abandoned lime quarry may be a money sinker despite its ancient local reputation.

Concrete blocks made by the standard specifications of the National Association of Cement Users have always been held in the highest esteem as a building material. They will always hold a place of their own upon the merits they possess, and will always be used in increasing quantities. Of course this will not apply to every market in the land, nor for every possible job that can be projected. There are places where well-made concrete blocks are quite as indispensable as any other standard material, and on the other hand there never was and never can be a place amongst recognized building materials for poorly made blocks.

EDITORIAL CHAT

W. T. Rossiter has just become manager for the Cleveland Builders Supply Co., of Cleveland, O. Mr. Rossiter is well known to the trade and is sure to make good in his new position.

The United Kansas Portland Cement Co. has added to its sales force W. B. Ege, formerly traffic manager of the Western States Portland Cement Co.

J. T. McKay, a student at the Kansas University, is answering the question, "Does a College Education Pay?" by contributing technical services to the Ash Grove Lime & Cement Co. in connection with its efforts to improve its Portland cement.

Richard D. Turpen, of the Northwestern Lime Co., St. Paul, Minn., has just returned to St. Paul after a two-weeks vacation at his old home in Greenville, O. Dick just got back in time to attend the Lumbermen's convention at Minneapolis.

Charles A. Matcham has resigned as president of the Fuller Engineering Co., Allentown, Pa., and will devote all of his time to the Allentown Portland Cement Co., of which he is vice-president and general manager.

S. D. Crozier, the new general sales manager of the Monarch Portland Cement Co., got his selling experience in the lumber business, having held several important posts in that big industry.

I. M. Yost has been reelected president and general manager of the United States Portland Cement Co., at Yocemento, Kan. He has been unusually successful in developing the possibilities of the company in the western territory.

It is our sad duty to chronicle the death of Leroy M. Harvey, sales manager of the Milwaukee district for Allis-Chalmers. He had been connected with this company for six years and was manager of the Milwaukee office up to the time of his death. He had a wide circle of friends who admired him for his many sterling qualities of mind and heart.

The Lumberman's Portland Cement Co.'s plant at Carlisle, Kan., is making progress under the supervision of the Hunt Engineering Co. Four kilns are now in place and the superstructures of a number of the buildings are nearing completion.

President W. B. Hill, of the Ash Grove Lime & Portland Cement Co., spent considerable time at the plant at Chanute recently. Extensive repairs and improvements are being made to take care of the coming season's business.

Sales Manager B. E. Allison, of the United Kansas Portland Cement Co., is one of the busiest and "hustlingest" men in Kansas City these days. With him to push the Sunflower brand is reaching every nook and corner of the territory.

One of the big, sensible calendars of the year comes from the Watt Mining Car Wheel Co., of Barnesville, O.—one of the kind that can be read across a good-sized room without straining one's eyes. There is no official notice to this effect, but it is probable that Ira E. Stevens, the Chicago representative of the company, had a voice in designing the calendar, as it is built on the commonsense plan.

Richard L. Humphrey, president of the National Association of Cement Users, has returned from a trip to Europe and has plunged into the work of the association with renewed energy. It is expected that Mr. Humphrey will have something to say at the coming convention that will be interesting regarding his trip abroad. There is no doubt but what he made searching inquiries along the lines, which will be of interest to the cement user, and the result of his investigation will prove of lasting benefit to the cement industry.

During the year 1909 permits for new buildings were issued in the borough of Manhattan (part of New York city) amounting to \$131,246,483, a net gain of over 1908 of \$46,270,107. The largest item was \$70,041,000 for flats and tenements. In the borough of the Bronx the permits for 1909 amounted to \$21,415,160.

What "Rock Products" Is Doing.

This is the first number of ROCK PRODUCTS for the year 1910, and as has been our custom for years past, it contains a sweeping review of that which lays before the building material interests of the United States for the coming year. With all of the experience gained in the past, and scoring full value to all of the organizations, concentration and coöperation of the producers, handlers and users of all kinds of materials used in building and engineering work, it is clearly to be seen that there are very favorable indications that the season of 1910 will be a decidedly prosperous year in the building material markets. Some of the present rosy-hued prophesies in the horizon may, it is true, prove to be partial disappointments, but, on the other hand, those which appear to be somewhat tangled and obscure may work out before the end of the season as the brightest and the best profit producers of all.

It will depend largely upon the judgment of the men at the helm in the beginning of the year as to what the commercial weather which shall prevail throughout the season is to be, and the log of the voyage of the good ship Business will naturally largely depend upon the way the wind blows. That these men recognize their responsibility is very clear because they are too large in their own minds to depend upon their single judgment, and this number of ROCK PRODUCTS goes to press with the announcement of conventions of organizations in almost every line of building materials, whose single purpose it is to accumulate into one known expression the sum of the best information, the best judgment, the best decisions that is in the minds of the composite whole of each industry.

Diametrically opposed to the principle of restriction of trade, the object which pervades all of these occasions is for the greater expansion of trade. The live and let-live idea must prevail in all such coöperative bodies as those whose announcements appear upon the respective department pages of this issue of ROCK PRODUCTS. There will be questions of ways and means discussed whereby the trade and the consumer can be furnished with the indispensable materials to be used in the building appropriations for the coming year in the most economical way, as well as the most consistent and safest methods to be observed in accomplishing this all-desired result.

Improvements in equipment, in cost keeping, in methods of salesmanship, and in publicity will be considered, and definite plans formed to undertake with the greatest possible efficiency the solution of the exact problem that presents itself. In the last decade there has been a tremendous awakening in regard to this principle of coöperation, and it has unquestionably been the means of accomplishing a great deal of good in the building material business, beginning at the point where the raw materials are taken from the bosom of mother earth, and only ending when the completed job goes into its commission of usefulness as a private investment or as a public improvement. During this decade our own efforts in this direction have been crowned with very gratifying success. Industries handling those building materials which are products of rock by this modern idea of concentration have grown to tremendous proportions. In fact, the sales of building materials made from the products of rock in the year 1910 by the most conservative estimates will amount to more than double what similar sales had ever reached in any year previous to the dawn of the 20th century. The gentlemen who are responsible for all of this improvement, and who will attend the various conventions which open the activities of the present year, are to be congratulated upon their progressiveness, their intelligence, their broadness of mind in being able to see beyond the circle and influence of their own establishments, and in realizing the advantages contained in that old Anglo-Saxon expression which has been bequeathed to the Americans from colonial times, "United we stand, divided we fall." In every step of all this mighty progress there has been not a single occasion that found ROCK PRODUCTS absent. We have ever been at the front to assist and support every progressive measure and to consistently distribute the value created in these open councils of commerce by crystallizing it into the printed reports and heralding the same down to the future upon the eternal printed page.

The attitude of ROCK PRODUCTS has never changed, and with the confidence of its constituents it adheres to the straightforward independent policy of always standing for the live and let-live principle of coöperation which is the one very great achievement of the Anglo-Saxon race and which sustains it today in the mastery of the world, much in the same spirit and with an earnest desire to see the sanest, safest and best measures adopted for the exploitation of building materials in the coming year. We will attend all of the trade conventions as usual and hope that every one of our readers will see to it that his establishment,

his interests and his part in the attitudes and responsibilities that lie immediately before us shall be represented at the respective associations, and that his representatives will carry out their part in the deliberations and in the decisions that are completed and promulgated.

In this time of calendar giving and receiving ROCK PRODUCTS has been almost overwhelmed by the remembrances of its many good friends. One of the prettiest that has come to the editorial desk is that gotten out by the Rapid City Lime and Gypsum Co., of Rapid City and Deadwood, S. D. The subject of the illustration represents a little Indiana maid, who is evidently playing at being squaw, carrying a papoose upon her back in typical Indian style.

The calendar issued by the Lehigh Portland Cement people is striking in design. It is much larger than the ordinary measurer of time, and the central illustration is a reproduction of the label which has become familiar to all users of Lehigh. The advertising manager was careful, too, to fill up the vacant spaces on the monthly sheets with praises of his product, terse and catchy sentences that always catch the eye.

H. C. Koch, sales manager of the Dixie Portland Cement Co., Copenhagen, Tenn., is now definitely located at Kansas City as sales manager of the Iola Portland Cement Co. Richard Hardy, second vice-president of the Dixie concern, has taken the sales management.

Wm. A. Fay, of Cleveland, has become a member of the Lake Erie Builders' Supply Co., of that city. He has got lots of steam in his system and certainly knows the business.

The Cleveland Material Co., of Cleveland, Ohio, handed out a handsome New Year's souvenir in the shape of a pocketbook to hold all your money, and inside attached is an accident insurance policy. Mr. Hurst is to be congratulated upon his enterprise. For every recipient is sure to keep this business reminder all the year.

John G. Evans and Dan Heck, of the Illinois sales force of the Atlas Portland Cement Co., will not let a customer escape even when the snow is two feet deep and the wind blowing forty miles an hour out on the prairie.

H. L. Green, of the Concrete Stone Co., Waterloo, Iowa, reports that he is dismantling his old concrete block manufacturing plant so as to rearrange it for making Raelly concrete structure tile upon an increased output next season. He says that business in concrete tile is building up so rapidly that he will be obliged to make all possible room and conveniences to take care of it.

Arthur Lewis, chief engineer of Lincoln Park, in charge of all the improvements at that important public institution, is a concrete devotee who has achieved some very important things in this line as shown in our leading article in this number. The concrete fence posts of Lincoln park are justly celebrated as the solution for once and for all of that somewhat perplexing problem. Like all of Mr. Lewis' work these are made by pouring a wet mixture into the mold.

L. J. Mensch, C. E., the well known concrete engineer who has been for three years in San Francisco, has returned to Chicago, and taken up the practice of his profession as contractor-engineer. He is now engaged in the erection of a factory building for A. J. O'Leary & Sons Co., at No. 646 West Lake street, which will be four stories and basement and measuring 120x140' on the ground. Following this for the same parties he will construct a forge 70x400' and in connection a power house and chimney. Mr. Mensch is the author of a "Reinforced Concrete Pocket Book" for the use of practical builders which is very valuable to the trade.

Wm. S. Hotchkiss announces that as soon as Forbes-Hotchkiss & Co. complete existing contracts the firm will retire from the contracting field. Mr. Hotchkiss has organized the Hotchkiss Contracting Co., which will have offices in the Manhattan building, Chicago, and do a general contracting business.

Frederick E. Paulson, the energetic western sales manager of the Lehigh Portland Cement Co., spent a day in Chicago the early part of the month. He says the big mill at Mitchell finished the year with less cement on hand than ever before. The entire sales force from the Indianapolis office is now on the trail for spring orders.

THE LESSON OF FIRE LOSSES.

Holocaust in Philadelphia Calls Attention Again to Fact That Use of Fireproof Material, Now Available and Cheap, would End Disasters.

When Prometheus came to earth and gave fire to man, supplying the one thing lacking to make his condition one of happiness, he brought a gift whose possibilities for evil were not realized. Although the gods rewarded the supposed dereliction on the part of the friend of mankind by subjecting him to the most cruel punishments and exquisite tortures, they did not know that the fire which had gone among men carried its own punishment, and that it was to be a curse as well as a blessing.

The destruction by fire of life, property and the more than intrinsically valuable possessions of the human race has accumulated the most colossal record of loss that the world knows anything about. The loss of life in battle, the destruction of wealth through earthquakes, floods or by other disasters, and the loss to which earth-beings have been subject from other causes not within the ordinary course of nature, fall far short of equaling the total of devastation resulting from the force of fire, which seems to have been almost the arch-enemy of man instead of the friend it was meant to be.

For thousands of years there was no adequate resistance which could be opposed to the fire demon. No building erected by human hands, and no material which was available for human use, seemed to be able to withstand this terrible monster, so that the losses which were laid at the door of fire could be put in the column, "Unpreventable."

Since reinforced concrete and concrete tile has been developed to their present stage of perfection, however, there is no longer any excuse for either loss of life or for serious loss of property. The man who must live in a humble cottage has the right to live there with the knowledge that he will not wake to find the roof burning over his head and the lives of himself and his dear ones in danger. And that cottage can be built today as cheaply by the use of such materials as Pauly tile as if it were constructed of the most inflammable materials.

The cinder concrete and reinforced concrete which have gone into the erection of some of the finest buildings in the world would, if used generally, practically put an end to fire losses, as far as new buildings are concerned, and would ultimately reduce that loss to the minimum where it belongs.

Every day the press of the country records the most harrowing holocausts, where dozens or scores of lives have been needlessly sacrificed, all because the owner or the builder of the structure which contained human beings allowed it to go up knowing that it would be subject to danger from fire. On January 19, only a few days ago, the papers all over the country flung out the news with their biggest type that 12 had died and 20 had been hurt when a six-story factory building in Philadelphia had gone up in smoke.

The building was in the heart of the produce district, and 100 people were employed in it. A third of them paid the toll, either with their lives or by suffering more or less serious injury, through the almost criminal negligence on the part of those in charge of the construction of the building. Many were hurt leaping from the windows, while the panic that swept over the inmates of the structure proved fatal to several in the mad rush down the narrow stairways. Women were crushed underfoot and the list of the dead was augmented by the name of many a young girl whose weak limbs were too frail to bear her through the double tide of flame and panic-stricken mob.

Rescuers plunged into the building undaunted, but their work was soon stopped. The roof collapsed, and its fall was followed by that of the floors, the weight of the roof weakening the structure until it was little more than a mass of ruins. And this terrible disaster occurred in Pennsylvania, the great state, one of whose chief boasts is its magnificent cement mills, and whose very hills are contributing so as to provide a building material which will defy the attack of fire. Had reinforced concrete or tile been used in that factory building, the loss would have been negligible in dollars and every living being within it would have come forth unscathed.

This is but one of the examples that are cropping out every day. As long as the public and the building trades are unmoved; as long as the realization that a real fireproof material is at hand is not followed by putting the theory into practice and building our factories and our homes of it, just so long will the record be extended, and just so long will be penalty paid in the blood of innocent victims.

Those who regard only the property involved may

say that the insurance companies must make good. But the farseeing business man knows that no insurance company can replace wealth once destroyed. It merely divides the burden and makes us all sharers of the loss. To reduce fire loss means to add to the general well-being by cutting off a source of constant drain on the whole commonwealth. If the country were to be able to wipe out its annual loss by fire, there would be no need of beginning inquiries having to do with a solution of the problem of living brought about by the high prices of foodstuffs and other items in the list of the necessities.

Evolution of the Concrete Mixer.

The evolution of the concrete mixer has been one of the features of the concrete industry. At the coming exhibition to be held at the Coliseum in Chicago there will be no less than one-half dozen distinct types of mixers, practically all of which have been devised and assembled in the past few years. It is quite true that mixing machines have been used in the placing of large bodies of mass concrete for more than forty years. The basic parts of all of the mixers which have been perfected by American machinery builders in the last five or six years were established for the same purpose a generation ago in England and Germany as well as in this country, and used on the larger engineering jobs where very considerable quantities of concrete were laid. But the mixer of today is a different proposition.

At the first national convention of cement users, held at Indianapolis in January, 1905, it is to be remarked that not a single mixing device was exhibited, and only one partial model with drawings of a mixer was to be seen. A year later when the convention was held at Milwaukee there were no less than twenty mixers in evidence, and on each succeeding occasion the mixers have not only secured the most attention, but they have also represented one of the most important and indispensable advances of the practical work of using cement. It is certain that five years ago practically all of the mixing of concrete was done by hand. That is to say, the aggregate materials and the cement were thrown together on a platform and the water added gradually while the men with the hoes or shovels performed the mixing operation. There is still a great deal of this kind of hand mixing of concrete done, but certainly more than half of all the cement that is used at the present time goes through a mechanical mixer of one kind or another, and the tonnage annually handled by concrete mixers is something astounding to contemplate. Every barrel of cement used will call for a total weight of no less than 2,000 pounds when translated into wet concrete, and if the total of 60,000,000 barrels which were used in the year 1909 had gone through mixers it would make the almost unmeaning total of 120,000,000,000 pounds. Certainly 80,000,000,000 of pounds of concrete were handled by mixers in 1909, and in the coming year this will probably not be less than 100,000,000,000. These are the kind of figures that mixer builders have to contemplate. It will take a great many mixers to perform this service, and from the basic figures it would seem that there is plenty of business for all of the concerns which are building the kind of mixers that are profit makers for the contractors. In the great irrigation projects of the West, where arid lands are ditched and watered, the concrete mixer goes in advance of civilization, and it is typically the opening gun of progress.

The American mixer of the present time is just as much in advance of the ideas in this particular five years ago as is every other part of the concrete industry. Mixers are now provided with automatic measuring devices to properly proportion the sand, the gravel, the screenings, or the crushed rock, as the case may be, as well as the cement and the water which goes to make up the correctly proportioned mass. The amount of agitation required in the mixing process has been studied to a nicety so that no important work where concrete is used and where uniformity is desired is ever considered without providing for the material to be mixed by machine. The man who runs the mixer and tallies the proportions occupies a very responsible position, because upon his shoulders rests the integrity of the whole job which his mixer supplies.

Among our advertisers are numbered the most progressive makers of the most efficient mixers now offered in the markets, and we want to call the especial attention of our readers who may be in the field for mixers for their work in the coming year to give them due consideration, for there is not one of them without merit or without special advantages which are not to be found in others. They have been produced by careful men who have made good as they went along, because they know the requirements and have met the needs of the contractor and produced profit-making machines which he cannot afford to overlook.

At a conference of prominent trade newspaper men held in the East last month, the principal subject of discussion was how to increase the profits of trade journals. It was shown conclusively that the usefulness of a publication like THE AMERICAN STONE TRADE is growing daily, and yet the maximum gross profit in the trade newspaper business, as figured by the representatives of thirty prominent publications, is less than 17 per cent. In other words, while there is a marked increase in the usefulness and in the expenses of trade journals that keep abreast of the times, and are a real help and benefit to the industries they represent, the returns are far from being commensurate with the outlay. Inasmuch as business is increasing, and some people seem to think the trade newspaper enterprise largely composed of blue-sky profit, it would be interesting to know what quarrymen and stone producers in general would think of a season that would give them only a gross profit of 17 per cent. And this after closing every leak, and stopping every possible chance for losses. There is in connection with this subject one feature in particular which appeals to the editor of THE AMERICAN STONE TRADE, and this is that when a trade paper gets out into the by-ways and hedges and persistently and consistently assists in the development of an industry in addition to the furnishing of a news medium, it is the duty of every man who has the interests of that industry at heart to use its advertising columns regularly, and in this manner bear a proportionate part of the burden.

Building Work Retarded.

NEW YORK, Jan. 21.—New York has suffered one of the hardest winters in a long time. Building operations have been at a standstill for the past month. Prices, however, have held up in almost all lines.

It is hoped that the labor troubles will be settled amicably before the season opens up in earnest, because there is such a vast amount of building work on the boards that if the trouble is not settled delays in the work will cause hardships on the contractors who have contracts to carry out the building work in a specified time.

It is peculiarly unfortunate that such conditions should arise at this time, as New York has been having the greatest building era that it has ever known. And while prices have not been as high in some lines as what the demand seems to justify, yet there has been no complaint except among the cement manufacturers, where the fight has been very keen for some time past. A resume of the past year's operations will give some idea of the immense amount of building work.

Glass Sand in Oklahoma.

BARTLESVILLE, OKLA., Jan. 17.—Glass sand in commercial quantities has been found within five miles of Bartlesville. A sample was brought to Bartlesville, and those familiar with the sand say it is finer in quality than any now in use by the glass plants in this part of the country. If further tests of the sand show that it is of exceptional quality and if it is found that the ledge is large enough to make it pay to mine it, the glass plants in this part of the Southwest will be getting their supply of sand from here.

American Society Mechanical Engineers Meeting.

The spring meeting of the American Society of Mechanical Engineers will be held this year as usual, in addition to the London meeting, which occurs in July. Atlantic City has been selected as the place for the spring meeting and it will be held from May 31 to June 3, inclusive. The headquarters during the meeting will be at the Hotel Marlboro-Blenheim.

The Los Angeles Pacific street railroad has authorized a large bond issue, part of which is for the construction of a subway in the southern city, and for the erection of a large office building.

The supervisors of San Joaquin county, Cal., have rejected bids for extensive road improvements under a \$2,000,000 bond issue, and the work will be carried out by the highway commission.

The Escondido Crushed Stone Co., W. E. Alexander president, has been organized at Escondido, Cal.

The Chickamauga Quarry & Construction Co. reports business as good. It is furnishing eight or ten cars of stone for the Birmingham Water Works, at Leeds, Ala., and also material for the culverts of the Hamilton county Rossville road. It is furnishing stone on some of the Stone Fort Land Co. buildings, and for a large dry goods house recently completed here it furnished the stone trimmings that have been much complimented.

Remarkable Progress in Concrete Industry.

America's concrete industry is beyond question the most remarkable feature of modern construction progress. Only ten years ago Portland cement was very little known, and it was considered at that time to have narrow restrictions with regard to its application. Literature upon the subject of the uses of cement was confined to a few pamphlets and technical papers. The prevailing idea was to the effect that cement was a good thing for engineers to know about, something which might be of possible interest to the architect, and incidentally a necessity to the contractors whose business required them to use it along with their other building material. This was the condition at the time that ROCK PRODUCTS was organized about nine years ago and entered the field as the first journal to recognize the coming importance of the uses of cement and the wide range of application of this material which could be developed.

The change now observable on every hand is little short of miraculous. Today there is not a commodity used in the arts which is more widely known than Portland cement, and every individual of average intelligence in the length and breadth of this land has a more or less distinct idea of the value of this really wonderful material and is acquainted with one or more of its specific uses. As evidence of this there are now no less than sixteen periodicals following the lead of ROCK PRODUCTS, and devoted to the industry from one standpoint or another. All of this has been accomplished by persistent, careful and intelligent educational promotion. These great results have not been accomplished without many personal sacrifices, a great deal of arduous study, and the investment and expenditure of considerable money. Manufacturers of cement, inventors and designers of machinery, engineers and contractors have been vigilant and enterprising and resourceful, and always supporting this well-organized educational movement, so that the improved systems and methods for using the labor-saving machinery and handling devices now exhibited at third annual Cement Show of the Cement Products Exhibition Company of Chicago will be largely representative of these achievements.

This latest and greatest show is the outgrowth of a movement that was started in 1905 when the National Cement Users Association was organized at Indianapolis in January of that year. A comparison of that convention with the present one is a good index of the improvement which the industry as a whole has experienced. Here we have a well-organized, efficiently managed, carefully-planned exhibition, while at Indianapolis the most chaotic conditions prevailed. Few of those who took part in the proceedings at Indianapolis will be found on the register of attendance for the 1910 meeting. Probably more than 100,000 people will visit the Coliseum during the coming show.

Two Educational Gatherings.

The annual meeting of the National Cement Users Association which will be held in conjunction with the Chicago show will doubtless have double the attendance as shown by the record of any former meeting. The papers that are to be read and the discussions of the same will be of immense and permanent value to the industry in the future.

Richard L. Humphrey, the president of the organization, who has given so much of his time, of his eminent qualifications and personal attention to the work of the association since the time of its inception, will administer these primal educational features as chairman of the various sessions. He has but recently returned from abroad, where he extended his observations and studies in the very lines that are most interesting to the users of cement, and the program which is printed in full on another page of ROCK PRODUCTS clearly indicates that the most important meeting in the history of this useful association is that which is to be held this year in conjunction with the Chicago cement show.

The American Association of Portland Cement Manufacturers will also have an educational feature at the coming show under the personal direction of its secretary, Percy H. Wilson, in the shape of a series of lectures on timely and interesting topics in connection with new but well tried uses of cement. Machinery manufacturers in each and every line will demonstrate the particular value and advantages of the equipment which they offer for the consideration of the users of cement, and there is in this particular line marked improvements to be noted from year to year, while standard and perfected apparatus and appliances are present to assert their well known standing.

Several of the cement companies will participate and assist in the entertainment of visitors, distribute their literature and generally endorse the movement. Every part, and the whole movement which makes possible both the exhibition and the participating conventions of cement users, of contractors and all

handlers of goods, is dedicated to the principle of education.

Great Opportunity for Good Work.

All the efforts of the past have been well directed and tremendous developments have resulted, but in the same way and along the same lines there is still a great deal of educational work to be done. Not every one by any means who has attended the conventions and the exhibitions of the past has learned how to successfully use cement or even to apply it beneficially to their needs. We know from our own observation and correspondence that very many have learned by expensive experience that to use cement intelligently and profitably requires no little study, considerable responsibility, and some capital. The first and perhaps worst mistake at the beginning of the educational movement in the exploitation of Portland cement was to disseminate the idea that anybody could do the trick with insignificant investment and with little or no previous preparation. It took a great deal of hard work, much money, and careful and consistent diplomacy to overcome the effects of this blunder, for it is nothing less than a very serious and costly blunder to mislead a totally unqualified man into attempting the practice of a mechanical art in which he cannot succeed without very considerable knowledge and practice.

There is a tendency at the present time to be overzealous and to carry this great and commendable educational campaign into misdirections which cannot result successfully, and in which there is danger of seriously clogging the wheels of progress by inducing a whole group of failures and discontent with the incomparable cement, a product which is of inestimable value when used and handled by the people who know and fully realize all of its advantages as well as its reasonable limitations. Unquestionably there is nothing more important than to have every intelligent citizen, no matter in what walk of life he may be found, to know that the really wonderful achievements that have been accomplished by the educational campaign of the concrete industry can be applied and used in his needs and in connection with the operation of his own business, no matter what that may be, but it is decidedly an unhealthy symptom to even suggest to a man who cannot tell a bag of cement from a bag of salt or a bag of fire clay that he can make any successful and profitable use of this material, which has made the brightest minds and the best qualified engineers to sit up and take notice in cases innumerable. There has already been plenty of experience in this direction. Let us look at the facts.

There are in the United States today between 5,500 and 6,000 persons all told who are qualified to use cement in all of the various ways that are familiar to our readers. Some of these are capable of constructing bridges, the frames and floors of buildings, and other more or less difficult engineering propositions, and these will by no means reach one-half of the total. All of the rest have learned to lay concrete in sidewalks, to make concrete blocks, underground pipes, and do building and engineering jobs of lesser importance. These are the cement users who will make good every month every year with every job that they undertake, and constitute the nucleus upon which to build up an organization and educate the people directly for a larger use and a wider distribution of the uses of the product of the cement mills.

The Home of the Future.

Heretofore the great educational campaign has been for the most part sanely administered, consistently conducted and intelligently controlled. This little note of warning is only sounded to prevent the utter dispersion of the good that has been accomplished by long concentration with one purpose in view. Looking now to the achievements which this campaign of education has accomplished one need only to turn to the members of the industry to find that permanent improvements for municipalities, for the great lines of transportation, for the harnessing of water powers, and for every conceivable type of modern building, to see that concrete made of Portland cement stands alone and is first considered as the indispensable material for such purposes where the best obtainable result is expected, and where the most permanent and hence most economical investment is required. All of this is well known to every one of our readers because there has never been a number of ROCK PRODUCTS issued that did not illustrate and emphasize each and all of these important steps of progress as fast as they were developed and perfected.

Over and above every other achievement of this concrete industry can be crystallized to the one statement that by the use of concrete the economical home for all the people can be built quite as cheaply as it can be built of lumber, and for the first time in the history of man there is no longer need for any builder of such a home to dread either a fire loss or the danger to life from fire to those who are sheltered in it.

This is a tangible financial benefit, and besides it contains a moral principle of progress against which all of the progress of invention that was recorded for the 19th century pales into insignificance. While true, it is that 95% of the homes of Americans are now built almost entirely of wood, and more than half of the remaining 5% are built of the combination of brick walls with wooden floors and roofs, still the fact remains and it is being disseminated that future construction of this kind will soon be considered little short of criminal when the great concrete industry offers more than one way of supplying the element of safety from the greatest danger that has ever harassed the builders of the past, without the elimination of any convenience or any display of taste and art which the individual may suggest or feel that he needs or can afford.

No other industry can point to an achievement comparable to this. It can be distinctly counted in money that is saved from wasted effort to replace that which is destroyed by fire, and beyond all this is the civilizing knowledge that the building, no matter what its description may be, if it is properly constructed of concrete, will never be subjected to, and never know fire damage or fire danger.

We are fully sensible of the importance of our responsibility to the trade and to the public, to the manufacturer, to the handler and to the concrete user alike, and the same assistance, coöperation and interested efforts will be continued in the future as in the past. We want every one of our readers to attend the great Chicago show, to participate in the convention of the National Association of Cement Users, and to get all that they can out of the great educational features which will be on tap in Chicago during the week of February 18 to 26.

Concrete Exhibits at Fairs.

As the merits of concrete construction become more appreciated and understood the country fair, hitherto almost exclusively agricultural in its nature, is fast undergoing a radical transformation.

There is no more strongly founded institution in America than the country fair. From modest beginnings, with a few prize pumpkins and hogs, as a cover for the more attractive "hoss" race, it has grown in importance and improved in character until now there are state fairs held annually in various parts of the country which are veritable expositions of everything that is new and useful in the arts and sciences. In proportion as the scope of these fairs has enlarged and improved, the character of the farmer has grown apace. Today the management of a farm includes more than mere digging and sowing and reaping. The man who makes a success of farming works with his brains as well as his hands. He is present in numbers at the annual fairs, studies closely the methods of those who have been successful, investigates new ideas, and takes advantage of them to the utmost.

From this has sprung the practice of making exhibitions of the concrete industry at these agricultural outings. While this feature is still in its infancy, the demand for it is such that it is sure to become a fixture on an ever-increasing scale. Wherever exhibitions of this kind have been intelligently made they have proved to be attractions of unusual interest. There is a reason for this. The day of cheap, temporary construction is passing. As the farmer develops he realizes that there is a real economy in honest, permanent work. He wants good roads, substantial barns and buildings, lasting walks, etc. The more he studies the subject the more convinced he becomes that these objects are best attained by the use of concrete. It means economy of construction in the end, more lasting results, more safety and a big reduction in the vital item of insurance. Above and beyond all this concrete construction enables the farmer to operate his farm with more certain profit.

It is, therefore, only natural that when the big fairs open the gentlemen from the rural regions are to be found massed at the concrete exhibits. They inspect, of course, the fat-stock show, the new agricultural implements, the prize chickens, and watch with keen interest the speed contests, but when the merits and uses of cement are being explained, and the operation of concrete-making machinery demonstrated, they will one and all be there, as near the front as possible, and keenly interested in everything that is said and done.

Progressive men who are concerned in the management of state fairs are "sitting up and taking notice" of this new departure, and making preparations to meet the demands of their patrons. Efforts are now being made to establish at each state fair ground a permanent cement industry building, where the exhibits may be properly housed and shown. It is a move in the right direction. In addition to the exhibition of cement products and concrete-making machinery, provision will probably be made for a series of lectures by competent men, with the purpose of giving practical information as to proper methods of mix-

ing and means of construction. There should be means devised for illustrating in a simple, easily-understood manner such things as: How to build a silo; how to erect a concrete barn; how to make fence posts and water troughs, and the numerous other structures for which concrete may be used on the farm.

This day is near at hand, and when it comes it will bring with it wonderful advancement for everybody connected with the cement industry, as well as for the farmers themselves. It is a work well worthy the attention of the managers of state fairs, and one in which the men interested in the production of cement and of concrete-making machinery may also join hands with great profit. What men prominent in agricultural instruction think of the movement is well shown in the following excerpts from letters written to the Universal Portland Cement Co., which has been investigating the subject:

"There is no question but what the farmers of Wisconsin need an extremely large amount of teaching in regard to the advantage and use of Portland cement. The conditions which you name on the Fair Grounds are anything but ideal for the purpose of furnishing this teaching and much better results would be obtained from concentration in a building devoted entirely to this purpose."—W. A. HOTCHKISS, Chief of Highway Division, Geological and Natural History Survey, Madison, Wis.

"I am inclined to believe that on account of the multitude of uses to which cement is being put on the farm, such an exhibit would arouse great interest on the part of the farmer and would prove a valuable feature of the fair."—W. J. SPILLMAN, Agriculturist in Charge, U. S. Department of Agriculture, Bureau of Plant Industry, Washington, D. C.

"I wish that it might be so you could construct such a building, procure a complete display of articles manufactured from cement and accompany these with literature concerning correct methods of using it, mistakes to be guarded against, etc., and possibly some lectures by experienced men during the fair."—H. E. CHAMBERLAIN, Superintendent Farmers' Institute, Brookings, S. D.

"I agree with you that a suitable building for cement exhibits would be the proper thing and in keeping with the advance of the growing use of cement, especially among the farmers of this state."—GEORGE MCKENROW, Superintendent Farmers' Institute, Madison, Wis.

"I think your suggestion a very valuable one and this board will aid you in every way possible to carry out your plans."—GEORGE W. COOLEY, Engineer State Highway Commission, St. Paul, Minn.

"I fully agree with you as to the importance of this matter and will be glad to aid you all I can."—T. C. ATKESON, Dean, College of Agriculture, West Virginia University, Morgantown, W. Va.

"I would be much pleased to see such a building as you describe erected on the state fair grounds."—CHARLES E. THORNE, Director, Agricultural Experiment Station, Wooster, Ohio.

"Your idea of interesting state boards of agriculture in the necessity of providing separate buildings for the display of cement and kindred products meets with our hearty approval. We have endeavored to place exhibits at a number of state fairs, but had to give it up in every case but one on account of not being able to secure proper space."—INSULITE CHEMICAL CO., Aurora, Ill.

Handsome Building in San Francisco.

SAN FRANCISCO, CALIF., Jan. 15.—One of the new buildings which is attracting a great deal of attention here is the St. Regis, a 5-story modern apartment structure at Clay and Gough streets. The exterior finish above the first story is of plaster made with the Sandusky Portland Cement Co.'s pure white stainless Medusa brand. C. A. Meussdorffer was the architect. The plaster work was done by Knowles & Kaiser. It is undoubtedly one of the handsomest of the many fine buildings erected here since the fire, and is doing much to encourage a better style of architecture and construction than has hitherto prevailed.

Aurora Company Elects Officers.

AURORA, ILL., Jan. 20.—At its annual meeting the Aurora Artificial Stone & Construction Co. declared a 6 per cent dividend, and elected the following officers:

President—Jacob Binder.
Vice President—A. F. Ansel.
Secretary and Treasurer—John Binder.
Manager—James Gough.
Superintendent—George Haag.

The company plans many improvements at its plant in Kingsbury avenue.

Largest Order For Concrete Stone.

BOSTON, MASS., Jan. 17.—Simpson Bros. Corporation has the contract to supply the concrete stone for the great structure now being erected in Fargo street for the Fargo Street Trust. This is the largest order ever given for concrete stone.

CONCRETE CONSTRUCTION ABOUT THE HOUSE AND FARM.

BY EDWARD D. BOYER.

(Cement Expert of the Atlas Portland Cement Co.)

*Ten years ago if I had been asked to prepare a paper on Portland cement I would not have hesitated in supplementing my remarks on the subject by an elaborate description of the method of manufacture, its composition and general character; it is not more than ten years ago when we who were then engaged in its manufacture were frequently asked whether the name "Portland" indicated the fact that it had first been made or "discovered" in Portland, Me.! I venture to say that today there are comparatively few people, including farmers (which latter class were at the same period supposed to know very little of anything but farming) that do not know that Portland cement derived its name from a natural rock found in England that was supposed to be the hardest of known rocks, that the materials from which it is manufactured are clay and limestone, and which are found in nearly every state in the Union; that these two materials are chemically combined and proportioned, intimately mixed and finely ground and then burned into clinker under a high heat, and the grinding of this resultant clinker produces the Portland cement of which I speak today.

Ten years ago only about three and one-half million barrels were produced in the entire country, while the production for the year 1909 approximates sixty million barrels, and this phenomenal increase in production and consequent consumption reduced the price to such an extent that it was available in every community as a cheap building material. This, followed by extensive and judicious advertising, brought Portland cement before the notice of everyone contemplating building of any character from the 20-story sky scraper in the large city to the chicken coop or hog pen on the farm.

And to this same farmer the material most emphatically appealed. He soon learned of its plastic character and his ability to mold it into any form. He read, he experimented and he asked questions, and I say to you today that the farmer with the use of his few barrels here and there was a great factor in keeping the mills running last year. There were some failures, but not as attributed by its competition the clay tile, the brick and the stone people, to the inferior quality of the material, but always to a lack of understanding in manipulation. I believe I am today in a state that is a great consumer of drain tile, and if I remember correctly it was in this very neighborhood that serious attacks were made on drain tile manufactured of Portland cement. How soon and how readily this attack was traced to the agents of the clay tile interests and how soon and how readily it proved a boomerang to them! There are miles of this cement tile in successful use throughout the Western country and I venture to predict that this tile will remain in the ground unattacked by the alkali bugaboo and without deteriorating or disintegrating long after the farmer who placed it there has passed away.

Plenty of Water Needed.

That there are failures in concrete and that this wonderful building material can be abused I will not dispute, and one of the greatest evidences of this can be seen in the many unsatisfactory concrete block houses that have been built in the past five years. All these failures can be traced to the lack of knowledge of the material that entered into their composition. How many of these blocks were made throughout the country with not enough cement in the mixture to hold the sand grains together and, most important of all, not enough water to even start the crystallization of the cement! And right here I wish to emphasize this question of the use of water in making concrete. I would almost say you cannot use too much water in mixing your concrete. Of course, you can drown your cement by the too free use of it, but as long as you can confine the water to the mass, that is, not allow it to flow off your mixing board, carrying the cement with it, it is far better than to have your mass so dry that it hardly sticks together even with vigorous tamping. The concrete block industry has passed through all the stages that usually develop in a new material and with mistakes in manufacture and exploitation has still survived and is bound to become one of the leading building industries of the country.

It appeals to the man of industry and thrift; to the farmer first, because he is the least ambitious he can mold the block himself, a few at a time in his leisure moments, knowing that after being cured they can be stored in any old place, even out in the weather, until finally he has enough to lay up the foundations and walls of his own home, a building that will last for all time, will require no paint, no repair, will be cool in summer and warm in winter, and a home to be proud of and to enjoy.

Much has been written and said on the subject of concrete blocks, and I would hesitate to occupy time on the subject if I did not know that even today there are inferior blocks being manufactured. It is hardly two months ago that I was called to a village not 100 miles from New York on a complaint of poor quality of cement. On the front of the "factory" was this sign, "Manufacturer of Waterproof Concrete Blocks." Blocks were being manufactured when I arrived. The mixture being probably correct, one to five for the base and 1-1 for the face of the block, but water was the scarcest article on the premises. The mixture was hardly wet enough to ball when pressed in the hand, and I was informed that the blocks were molded in this manner and allowed to stand until the next day, when they were plentifully sprinkled. On what were supposed to be cured blocks I poured a scoop shovel full of water that disappeared so rapidly in the block that the surface was dry a few minutes after; and all because to use more water would have reduced the quantity of block that could be made in a given time, thus increasing their cost! Will it be surprising that the man for whom this house is being built will in a short time complain of dampness in the interior, paper coming loose from the walls, etc., and that he will tell his neighbor who contemplates building not to use cement? It is no good? I believe you of the West interested in block manufacture have learned this lesson and arrived at the stage where you know it is not so much the particular machine, nor yet the particular

*Read before the meeting of the American Society of Agricultural Engineers at their meeting in Ames, Iowa, December 28, 1909.

brand of cement, as it is that the aggregates, the sand, must be of good quality, free from loam and vegetable matter, properly graded and the mixture sufficiently rich in Portland cement, and all mixed with enough water to properly assist in crystallization.

Best Means of Waterproofing.

And on the subject of waterproofing a block or anything else made of cement concrete I believe a richer mixture, that is, the use of more cement will be more effective, durable and lasting than the more expensive use of any of the many so-called waterproofing compounds at present on the market. I feel sure that a rich mixture with the additional use of 10 per cent of hydrated lime, that is, 10 pounds of properly hydrated lime to every 100 pounds of cement used, will most effectually waterproof concrete and prove considerably cheaper than the use of the waterproof compounds referred to.

The fact that sand and gravel are found all over the country and on most every farm, or at least in such close proximity that teaming to the work is the only cost, has made concrete the ideal cheap building material, and of this sand I wish to say again that first of all it must be clean. However, the fact that the sand you wish to use is not clean does not prevent its use. Water is also cheap and plentiful in this glorious country of ours, and to wash thoroughly and flood your sand with it is no difficult job, nor does it cost anything. Loam, vegetable matter, clay and most impurities can be removed in this way. Of course, your sand must be hard; a shaley sand is no good. Always remember that a concrete is no harder than the aggregates of which it is composed, and, therefore, avoid the use of shales of any character, of brickbats, and of soft sandstones. Sand, too, should be well graded from coarse to fine. Remember that a theoretically perfect concrete has every grain of the aggregate covered with cement so that the crystallization of the material can occur uniformly and effectively. Every void is supposed to be filled, the smaller grains fitting into the larger, and the nearer your concrete reaches this condition the better it will be. You can use all find sand, yes, but you will readily understand that it will require more cement and therefore cost more money. And again, you can understand how much more carefully the materials must be mixed to accomplish the required result of having each particle of the aggregate covered with the cement if you use a fine sand than if you use a well graded one.

This subject of mixing is also important. The mixing of the sand and cement, then the addition of the crushed stone or gravel, and finally the water, all tossed about on the board or in the box until you have one homogeneous mass, must be carefully conducted. Tools for work are always on the farm and one of the best is the ordinary garden rake.

Uses of Concrete on Farm.

The uses of concrete about the farm are so many and so varied that I can hardly do more than touch upon them separately. To the farmer whose property has been run down, whose board walks are rotten and whose door steps are rickety, whose fences are half down and many of the posts rotted and useless, whose clatern leaks and floor is decayed, whose silo is not air or frost tight, whose hog troughs have been chewed by the hogs until they scarcely hold the mash, whose horse manure is in the same condition and stalls kicked to splinters, whose water troughs leak water faster than it can be pumped in, whose chicken nests are filled with vermin, and finally whose barns have become weatherbeaten and are falling into decay, this material emphatically appeals. It is like Lydia Pinkham's Discovery or Duffy's Malt Whisky—it is a cure-all, but, unlike the medicines referred to, the cure is not temporary but permanent.

I am frequently asked whether frost will affect concrete, and again this point appeals to the farmer, from the fact that the winter months are his idle months, with time to devote to the making of fence posts, for instance, and is therefore important he should know that frost does affect concrete, but only before it has set. If there is any way to protect concrete after being placed, for a few days or till after it has hard set, there is absolutely no danger. And here again the farmer has the best protector for concrete and it is right in his manure yard. A covering of manure over concrete will thoroughly protect it from the frost. Care must be taken that the aggregates are free from ice particles, the water, if possible and the aggregates heated to about 80 degrees Fahr. and the concrete promptly placed and covered as above. A point I wish to make right here is that only a sufficient quantity of mortar should be mixed at a time as can be used at once, as a mortar that has become set or even partially set is absolutely worthless and should be discarded. Fence posts can be molded in a warm building a few at a time during the leisure moments, and after a week can be placed in the open without fear of disintegration and it will be surprising when the spring comes how many of the rotten field posts can be replaced and how soon the entire farm can be surrounded with a fence that will always remain erect and that will never require renewal. What, really, does first cost mean or amount to in the mind of the progressive, up-to-date farmer when this boon is in sight?

Fireproof and Sanitary Qualities.

And best of all, and what I have not before mentioned, are the fireproof qualities of this material. Again this should especially appeal to the farmer whose isolated location usually leaves him without fire-fighting apparatus. Concrete is fireproof, absolutely, as was proven in the great San Francisco earthquake and fire, where concrete was the only building material that in any way withstood the ravages of the flames. There are also several instances where fires in houses throughout the country gutted the house, even to burning out the window sash and frame, but the concrete remained intact and as good as before the fire.

Concrete is also sanitary in every sense, and healthful conditions exist wherever it is being used in buildings. Buildings of concrete can be flushed out with water regularly without damage to the material. Moth nor rust will not corrupt, nor can thieves break in or steal. I have a friend who says he wouldn't have a concrete house because you couldn't tear it down nor even burn it down and the only way to remove it would be to blow it away with dynamite.

I trust that what I have said will induce you to at least investigate the possibilities of this material, and believe me when I say that it is no longer an experiment but a building material that will become more and more a benefit to mankind, making the unhealthy tenement of the great city at least a sanitary, healthful abode, and producing more substantial homes throughout the length and breadth of our whole land.



The National Builders' Supply Association

Meets Annually.

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Harry W. Klassen, Baltimore.....Treasurer
James W. Wardrop, Pittsburg.....Secretary

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California.....C. J. Waterhouse, San Francisco
Delaware.....Charles Bye, Wilmington
District of Columbia.....S. D. Lincoln, Washington
Georgia.....P. G. Hanshan, Atlanta
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Illinois.....H. H. Halliday, Cairo
Iowa.....R. Hay, Dubuque
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New Jersey.....Ambrose Tomkins, Newark
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Ohio.....E. S. Walton, Youngstown
Pennsylvania.....Cyrus Borgner, Philadelphia
Rhode Island.....C. M. Kelly, Providence
South Carolina.....A. G. Gower, Greenville
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Official Organ, ROCK PRODUCTS

The eleventh annual convention of the National Builders' Supply Association will be held at Chicago, February 23-24, 1910, during the Cement Show. Make your plans now to attend the greatest gathering of building material men ever held.

Eleventh Annual Convention.

The eleventh annual convention of the National Builders Supply Association will be held at Chicago, February 23 and 24, during the great Cement Show. Too much importance cannot be attached to this meeting at this time.

During the Cement Show there will be present the manufacturers of various lines of builders supplies from all over the country. This will be a great opportunity for the builders supply men to get in closer touch than ever. The strength of any association lies in numbers, as much as anything. As far as personnel is concerned, the National Builders Supply Association has enrolled among its members many of the leading retailers of this country. The association has been a great success and its influence has been felt wherever builders supplies have been sold.

Low rates upon all the railroads entering Chicago at this time should bring together one of the largest gatherings of retailers that has ever attended one of these conventions.

The program, as outlined by the secretary, covers a wide range of the topics interesting to every retailer. The present year will see building reach its greatest height and the builders supply men should reap their share of the prosperity. There should be a closer understanding between the manufacturer and the retailer, and there is no better time than now to effect that understanding. Every branch of manufacturers who sell to the retailer is organized, and it is up to the retailers to busy themselves with any problem that confronts them and work it out along lines of mutual interest.

Every builders supply man in the country who can possibly spare the time will find it to his interest to come to this convention, and we hope to see the largest number present that has ever attended a similar gathering.

APPEAL TO REASON

President Wright, of the National Builders Supply Association, Urges Members to Take Active Part in the Convention.

President Frank S. Wright, of the National Builders Supply Association, and his brother officials, are working hard to make the annual meeting of the organization, which is to be held in Chicago February 23-24, a red-letter event. And they are going to do it. Enough is already known to make it positive that the meeting will be the largest and most important, and most profitable, in the history of the association. In this connection President Wright has issued the following appeal to the members. It should be read closely and heeded by every man interested in the building supply business:

To the Members of the National Builders Supply Association:

The annual meeting of our organization in Chicago, February 23 and 24 next, promises to be the most profitable in its history. The success we hope for, however, must come not through the efforts of the officers alone, but through the interest and the enthusiasm of the individual members themselves.

Our association's purpose is to secure to the fullest possible measure trade advantages for its members. It is essentially a mutual organization. This being true, the force that the association exerts and the success that attends its efforts depends upon the work of the individual members. Modesty or diffidence often prevents a member of an association like ours from exerting the influence that he feels he should exert. In this body every member has the same duty as every other member, and the same rights. He should not come to the meetings merely to listen. He should give as well as receive.



FRANK S. WRIGHT, PRESIDENT OF THE NATIONAL BUILDERS' SUPPLY ASSOCIATION, CHICAGO, ILL.

In respect to the individual member, his associates have a right to expect from him drafts from the storehouse of his experience and advice in shaping the course to be followed along various lines. The individual has a right to expect and receive the same things from his associates.

While I am reasonably certain that the coming convention will be the most fruitful we ever have held, I say these things just to add to the fuel of your enthusiasm, if any is needed. The convention is to be held in the dawn of a year that promises to be the most profitable for the men engaged in furnishing building materials that we have experienced. The harvest is ripe and your membership in the National Builders' Supply Association never was more valuable than it is today.

Your president and the other officers desire every member to be present at the Chicago meeting, and this leads me to remark that the feeling that your dues are paid up, if you are now in arrears, will be the greatest possible incentive to the fullest enjoyment of the meeting. Laxness in the payment of dues is more often caused by forgetfulness than any other cause. Our association has been peculiarly fortunate in the fact that its members have always been loyal, and I am convinced that every individual member will take pride in the ambition of the officers to have the convention this year open with every member paid up, and will do all in his power to accomplish this result.

So those who are in arrears ought to square the account, not only as a necessity for the association work, but as a matter of personal satisfaction to themselves.

Let this be the first act resulting from your sense of duty.

Then come to the meeting and not only listen but speak your mind on all the questions that will come up.

The following Retail Dealers Associations will meet this year:

Southwestern Lumber Dealers' Association, at Kansas City, January 25-27.

Tri-State Retail Lumber Dealers' Association, at Evansville, Ind., January 26-27.

Retail Lumber Dealers' Association of Pennsylvania, at Pittsburg, January 27-28.

Kentucky Retail Lumber Dealers' Association, at Louisville, February 7-8.

Western Retail Lumber Dealers' Association, at Portland, Ore., February 14-16.

Illinois Lumber Dealers' Association, at Chicago, February 16-18.

Illinois Masons' Supply Association, at Chicago, February 16-18.

Wisconsin Retail Lumber Dealers' Association, at Milwaukee, February 23-25.

Mason Material Dealers' Association of New Jersey, on March 10.

Lumbermen's Association of Texas, at San Antonio, April 12-14.

Be an active force. Your associates need your advice and help, and you will receive more yourself than you will give. You will return to your business better prepared for your work during the coming year.

Entertainment has been provided and able speakers will address you, but after all YOU are the man, you and your associates, who will make the convention a success.

This manly appeal is being well received by the members, and will be productive of good results in the way of increased attendance and a lively interest in the proceedings.

Do We Need a Mail Order House for Builders' Supplies?

The mail order house principle is being introduced into the builders' supply business by a concern which is known as the Consumers Material Co., of Kansas City, Mo. They make the astonishing statement that they will sell a single bag of cement for 25c, and deliver it to the railroad at any designated cement mill, and that the cement company will redeem the sacks upon the same terms as other patrons of the cement mills. It also states incidentally that it will sell, on the same mail order plan, a full line of corrugated iron, roofing, planing mill work, sash, doors and windows, sand, brick, etc.

This is the first attempt that we know of to introduce the mail order idea into the builders' supply business, and it is distinctly a plan to eliminate the retailer of building materials insofar as possible, because the consumer is in this way asked to deal with such mail order agencies on practically the same basis as the regularly recognized dealer.

The question arises, What are you going to do about it? The country merchant has sat idly by and allowed this condition to grow up in the line of hardware and dry goods and practically every other line. The old adage of "a stitch in time saves nine" can well be applied right here and now by prompt action.

Our travelers have discovered the fact that there are mail order houses starting to do business in cement, and in the West particularly. Several cement manufacturers we know of have been requested to join in this nefarious practice, and have refused to do so. But from the documentary evidence in hand others have not been so honorable, and have entered into this campaign of selling to consumers in small lots for cash. It is principally cement, of course, and people are misled into believing that with cement they can perform untold wonders.

The manufacturer of cement who will allow himself to be inveigled into such a proposition is digging a pit for his own future destruction, because in most cases the goods will go into the hands of people who cannot use it intelligently, and this is merely courting a whole army of failures, which will cause in the near future the complete elimination of all the good that has been accomplished in past publicity campaigns where cement and other building materials have been handled in a sane and capable manner.

The manufacturers as well as the retailers of building supplies must be on their guard to prevent such a proposition as this from making any serious inroads into the business. The material cannot be sold to these or any other parties unless there is a source of supply. If the responsible dealer is eliminated from the business by such procedure it can only mean untold loss and destruction of business, and chaos will



MAIN OFFICE.



ACCOUNTING OFFICE.

follow which cannot be repaired, possibly, in the space of a generation.

We hope a word to the wise is sufficient, and that those in a position to stamp out this evil now in its infancy will not be misled by any false representations which may later on be a matter of deep regret, and at the same time irreparable. It does not have any benefit for the deluded consumer, who finds that his freight bill added to the price charged for the goods will make the cost more than he could buy for at home.

There is but one way for building materials to be handled profitably, and that is through the substantial retailer. It may be that in some cases the retailers have not been fair, and where they have been primarily lumber dealers may have discriminated against cement to a few possible buyers, still one swallow does not make a summer, and it is easier to get over this kind of isolated cases in any old way rather than to let down the bars and leave the business open to the ravages of the mail order house, which is no respecter of persons, but the destroyer of manufacturers and dealers alike, in a way that has worked disaster in many other industries.

To the retailers who have been affected and to those who are not being affected, but who can see that in the future they will be affected by this new departure, we say that it is up to them to come to the Chicago convention of the National Builders Supply Association in February and raise their voices in their own defense, and take whatever measures are necessary to stamp out this threatened attack upon their business and upon their investments while it is yet time.

Beyond question this is the best and only way to discuss the matter, and we invite all such dealers to communicate with us first and make their arrangements to be at the Chicago meeting, and we can

promise them that their attendance and their voice will not go unnoticed and unheard.

Good Advice to New Jersey Dealers.

NEWARK, N. J., Jan. 18.—In connection with the annual meeting and dinner of the Mason Material Dealers' Association, which is to be held March 10, an attractive journal has been issued. Secretary James M. Reilly modestly calls it a "bulletin," but it is more than that—it's a regular live-wire newspaper, chockfull of straight-from-the-shoulder hits for association work. The following paragraphs, for instance, will be of interest to men in other lines of business:

The character of the complaints received during the year on account of direct sales made to consumers have been of a minor order, and it is gratifying to report that settlement was made without friction, the attitude of the different concerns being favorable to the plan of co-operation proposed. There is every reason to believe that the several companies which have made one or more direct sales to consumers are now keeping within bounds, and are endeavoring to co-operate with the dealers. This is substantially correct with the possible exception of one company, whose membership has been cancelled for failure to live up to the policy of selling through dealers only.

Follow the good example set by the largest dealers, several of whom constantly refer to the printed list of associate members before placing orders with salesmen, and if the name of the concern is not among the list of associates, tell them so, and tell them that you believe in co-operation and reciprocity.

It is now an every-day remark on the part of manufacturers that they prefer marketing their product through the dealer, a very great change in sentiment to that which existed in the recent past when the dealer's usefulness was considered of small moment in the work of distribution.

Every dealer must co-operate to maintain an open market, give the manufacturer a square deal, handle the material for which a market has been created, and in so doing we will individually convince the manufacturer that we are right, and that we are doing a legitimate business as distributors.

Hunkins-Willis Lime & Cement Co.

St. Louis, Mo., Jan. 17.—One of the most widely-known dealers in builders' supplies in St. Louis is the Hunkins-Willis Lime & Cement Co., which was founded by the firm of Thorn & Hunkins in 1875. In 1889 it became the Thorn-Hunkins Lime & Cement Co., and in 1896 was succeeded by the Hunkins-Willis Lime & Cement Co., with F. P. Hunkins as president and treasurer, and Gordon Willis, vice-president and secretary. The stock of the company is held entirely by these gentlemen. For many years the company has been recognized as one of the largest distributors of building materials in the United States. Prior to the general use of American Portland cement it was a very large handler of foreign Portland cement, importing via the Eastern seaports, as well as New Orleans and Galveston, and distributing the importations to interior states. This company was one of the first to open a building specialty department. The company now has an engineering department in charge of skilled engineers, devoting their attention exclusively to reinforced concrete construction work and the sale of materials used in this class of construction.

In its specialty department the company controls the sale of the output of many large manufacturing concerns, its trade reaching to every part of the United States, as well as to Canada and Mexico. For many years it has been one of the largest distributors of the cement made by the Atlas Portland Cement Co. It has a number of large warehouses, each located on railroad track, and in various sections of the city, so as to reduce the cost of delivery to a minimum.

The business requires a large number of horses and wagons. All of the horses are large iron gray Normans, uniform in color, and the wagons are all of one design and color scheme. The perfect appearance and uniformity of the horses and wagons is an excellent advertisement, and creates constant favorable comment.

In addition to a large lime and quarry plant located on the Frisco railway 20 miles from St. Louis, the company also owns the Peerless White Lime Co., whose quarries and plant are located at Mosher, Ste. Genevieve county, Mo. The white lime produced at this plant is now recognized as one of the highest grades produced in the country, analyzing over 99 per cent carbonate of calcium.

A few months since the company moved its offices to 902-906 Century building. The new offices are magnificent in furnishings and perfect in arrangement, occupying a space of about 2,400 square feet.

Big Contract for Sewer System.

A. W. Eisenmayer, president of the Granite City, Ill., Lime & Cement Co., and also a contractor who has been coming to the front lately in a notable way, has just been awarded the contract for the construction of an \$18,000 sewer system in Collinsville, Ill. The contract was awarded to him over a great many other competitors, and is a big feather in his contracting cap. He has recently secured street building contracts in Madison, Ill., amounting to \$110,000, and his work there has attracted a great deal of attention.

Mr. Eisenmayer is a leading builders' supply man and has a warehouse in Granite City which has 60,000 square feet of floor space. The Granite City Lime & Cement Co. was organized in 1903, and it has been only recently that its president has gone extensively into the contracting business. He has in his employ W. W. Kerch, a graduate of the engineering school of the University of Illinois, and is well equipped in other ways to handle the biggest kind of contracting jobs.



PRIVATE OFFICE HUNKINS-WILLIS LIME & CEMENT CO., ST. LOUIS, MO.

OHIO DEALERS MEET.

Big Attendance at Columbus, Where Relations of Dealers and Manufacturers Are Discussed—W. A. Fay of Cleveland, Elected President.

COLUMBUS, O., Jan. 21.—One of the largest in attendance ever held in Ohio was the fourth annual convention of the Ohio Builders Supply Association, which met at the Southern hotel in this city Thursday and Friday, January 20 and 21. Close to two hundred retail dealers, manufacturers and wholesalers registered at the hotel. They came from every section of the state and country to attend this important event. Great enthusiasm and good fellowship reigned throughout the two days' sessions, in which much business of vital import to the retail dealers of this state was transacted and lively discussions displayed the interest taken in all matters before the convention for the betterment and welfare of its members. The members all worked hard and accomplished much and between sessions enjoyed to the full the unbounded hospitality tendered them by the city of Columbus. The committee on entertainment provided a card party in the parlors of the Southern hotel Thursday afternoon for the ladies in attendance, and in the evening a theater party at the Great Southern for all the visitors. On Friday a matinee was given at the Keith theater for the ladies and in the evening a banquet at the Southern hotel, graced by the presence of the ladies, made it the most charming and enjoyable feature in the excellent program of entertainments.

MORNING SESSION, JANUARY 20.

Sharp at 11 o'clock the convention was called to order in Convention Hall at the Southern Hotel by President Frank Hunter. In hearty and well-chosen words the president extended greetings to the members of the association and then introduced the mayor of Columbus, George S. Marshall, who delivered the address of welcome.

The mayor extended a hearty welcome to the members of the association to the city of Columbus. He congratulated them on the wisdom of their action in choosing Columbus to hold their convention in, as it had become known as the convention city of the state, by reason of its central location and its knowledge of how to entertain visitors royally. This art, he said, had come with practice, as the city had more conventions than any other in the Middle States. It is, he said, the third wealthiest city in the United States and its fame for hospitality had spread far and wide.

He then defined his reform policy as mayor of Columbus. He had been charged, he said, with trying to institute blue laws. This, he said, was not true; he simply insisted on common decency; he did not believe in the blue laws of Connecticut. Everyone would find here the fullest liberty to enjoy himself, and from the appearance of the body of clean-cut business men he had the pleasure of speaking to, he knew it would not seek license. He invited them to come often to this city.

President Hunter then introduced J. Y. Bassell, secretary of the Columbus Chamber of Commerce, who, he said, had done much for the city and whose fame as an eloquent speaker was not confined to the boundaries of the state.

"You have been warned by your president and our model mayor," he said, "but I will relieve you, as the hour is now approaching high noon, of that anxiety which couples eloquence with limitless flight of time by telling you the story brought to my mind by my present position. A newsboy sold the other day a paper, chronicling in big headlines an atrocious murder.

"What will you do with him, my boy," the stranger asked; "hang him or imprison him for life?"

"Neither," answered the boy. "In this state we kill murderers by execution."

"Now I am not going to do that to you."

He then briefly spoke of the advantages Columbus enjoyed as a great railroad center, twenty-six roads entering the city. Its central location, its hospitable spirit and its ability to take care of conventions every day in the week, including Sundays, had given it a big advantage. Paying a high compliment to the mayor, he concluded, saying, "It is my heart's desire that you enjoy all the legitimate pleasures while here. I am not going to kick if you don't draw the line so very close. When your work is done we will wish you Godspeed and will have a hearty welcome for you when you return."

President Hunter replied in a happy vein, saying that the doors of the city had been thrown open for them and that he could vouch to the gentlemen who had spoken for the good behavior of the visitors to the convention individually and collectively. He talked

of the anxieties, difficulties and troubles of the retail builders' supply dealers and said that the aim of the association is to create a friendly feeling in the trade. He thought that the association had brought about the feeling now and that dealers believed that their competitors were as good as they were.

Adjournment was then taken to 3 o'clock.

AFTERNOON SESSION, JANUARY 20.

The meeting was called to order by President Hunter. William Harvey Jones, a prominent attorney of Columbus, was introduced to the convention. He read the following able paper, remarkably clear in all its details.

"LIEN LAWS AND THEIR APPLICATION."

By William Harvey Jones, of Columbus.

I take it that you, like most of our good American citizens, are not very much concerned about what the laws of the state of Ohio are—the Lord knows there are enough of them. What you most need to know is how, if at all, you can make the best use of such as there are.

We have been blessed or cursed with a surfeit of mechanics' lien laws in Ohio for many years. It took the legislature many years to enact such laws, and it took the supreme court as many years to find out that there was no such law, and then the legislature took a turn at it again, so that we have on our statute books a sort of monstrosity called a sub-contractor's lien law, which resembles a cross between a section of the blue laws and a Peruna almanac. At any rate, we have a lien law, and as it does not lie within our power to change it or abrogate it at our will, we must take it as we have it and determine, if we can, whether this munificent gift of legislative charity is of any value to us or whether we should charge it up to profit and loss and forget it altogether.

A lien law may be a beautiful creation, but if you can't use it it becomes a most useless ornament, a ladder of no value, merely to carry around if you can't go anywhere with it.

Mechanics' lien laws authorized by the statutes of Ohio may be divided into two classes, to-wit: direct



FRANK HUNTER, COLUMBUS, O.

liens and sub-contractor's liens. You will readily understand the difference between the two classes without my going into details, for a direct lien is one taken by a principal contractor against the real property of the owner with whom he contracts, while a sub-contractor's lien, as the name implies, is the lien of the sub-contractor against the money, not the real property, of the owner, which is payable to the contractor by virtue of his contract with the owner.

Perhaps in order that we may understand ourselves better, I shall illustrate a little more clearly. A owns a lot. He contracts with B to build a house on it. B takes a lien on the lot and house to secure the amount due him. This is a direct lien.

In the other case, A owns a lot. He contracts with B, the contractor, to build a house on the lot. B buys his supplies from C. C takes a lien on the money due B from A under their contract. This is a sub-contractor's lien.

Direct liens in Ohio are quite satisfactory. In most cases they are efficient and accomplish the purposes for which they are intended, and as against them there is but little complaint. But you supply men are not concerned to a very large extent with direct liens. The largest part of your business is done with the contractors and even with sub-contractors, and it is against the unreliable contractor that you need protection. It is to the contractor and not the owner that you are asked to extend credit in most cases, and there is where you need your protection.

Defects in The Law.

The sub-contractor's lien law is designed to afford that protection, and theoretically it does so, but in fact it does not. In order for a sub-contractor to assert a lien he must serve upon the owner and contractor a verified, itemized statement of the material or labor which he has furnished or is about to furnish for the erection or alteration of a certain structure on the

real estate of the owner by virtue of a contract between the owner and the contractor. This verified statement should contain a description of the property upon which the building is being erected. At the same time, he should file in the recorder's office of the county a copy of the verified statement and the notice which he serves on the owner and contractor. This appears to be quite simple, and there seems to be no reason why the supply man shouldn't assert his sub-contractor's lien frequently, but you know that he does not. Why doesn't he? For whatever reason, the fact remains and we all recognize that fact. You do not take liens once in a dozen cases when you should. And in those cases you go to a lawyer and pay him five or ten dollars, and when he gets his lien out you discover that the owner has paid the contractor what he owed him and you have nothing to pay but your lawyer.

Such is the practical operation of our sub-contractor's lien law. And why is it so? I will venture to suggest several reasons, and I will discuss briefly how I think the difficulties may be removed, to some extent at least.

The first great reason for the unsuccessful operation of the sub-contractor's lien law is that its operation is too cumbersome. There is too much of what is known as "red tape" about the transaction to invite its use by business men whose time is fully taken up with their business matters. We stand off, look at it in much the same way we scrutinize our wife's new hat. While admitting that it is a beautiful creation, fearfully and wonderfully made, we approach it with fear and trembling. And we might say it is equally expensive. Seriously speaking, a sub-contractor's lien appears too formidable for the average business man to tackle. When you take out a lien you have a sort of guilty feeling, as if you were about to commit a crime—were about to do something awful, like getting married. You will not and can not take the time to take out a lien.

It seems to me that the reasons why we take such a view of the sub-contractor's lien are these. In the first place, it is necessary to get a description of the property or at least such a description of the property upon which the building is being erected that it may be fully identified. In order to be sure of this, a search of the records is necessary. This takes too much time. In the next place, the contract between the owner and the principal contractor must be identified and the date and substance given if possible. This is difficult and oftentimes impossible. Having obtained the description of the real estate and identified the contract and prepared the verified statement which your lawyer will tell you must be formal and specific, it then becomes necessary to find the owner, and as our law stands at the present time, it is necessary for you to have personal service on him. Service at his usual place of residence is not sufficient. Having found the owner it is necessary to find the principal contractor and make personal service on him. Having served everybody you can think of, it is necessary for you to file a copy of your itemized statement with the county recorder, and then having performed your duty toward God and man, you think you have a lien, but in nine cases out of ten it turns out that before you served your notice the owner paid the contractor all he owed him, and there is nothing for the lien to reach and you are right where you started. In other words, when a man understands he must go through all these different formalities to assert a mechanic's lien, he is apt to, and does, quit before he starts.

What will remedy the situation and make the operation of the lien law more practicable? My view has been that if the sub-contractor's lien law could be so amended as to make it as simple as possible; to make it as easy for the sub-contractor to take out a lien as it is for him to send a bill to the contractor; if it can be done, business men can take the time and will take the time to exercise a lien; otherwise not. I have examined the section of the statute which provides for the mechanics' lien law, and I have reached the conclusion that with a slight amendment the law can be made more practicable and perhaps made so simple that business men can afford to take advantage of it and that they will take advantage of it.

How The Sub-Contractors Suffers.

At the suggestion of our friend Hunter, have prepared an amendment to the law which he wishes presented to the present legislature, whereby it is provided that a person desiring to take out a mechanic's lien may make out his itemized statement and serve it upon the owner and the principal contractor by mailing the same to their usual address by registered letter, and such service will constitute notice to them. This would remove the necessity of such a waste of time and trouble in hunting up the owner and the principal contractor, and the sub-contractor could make out an itemized statement of his bill, verified by affidavit, and mail it out in his daily mail and thereby perfect his lien. As I said before, such a provision would greatly facilitate the use of the law, but in order to make even such a law as that successful, you supply men and sub-contractors must learn to use the law. You ought to go through a course of education in how to use the law. The fact is, the law as it is at present could be used by you to a much greater advantage than it is if you only knew how. I venture to say that very few of you, if any, know that you can take a lien before you furnish any material. But such is the fact. In other words, if a contractor should come to you and should contract with you for material and you were not satisfied with his credit, before you delivered any of the material you could take a sub-contractor's lien. This part of the law could be used to great advantage by builder's supply men.

We hear considerable about trusts and monopolies in these days. Business men are afraid to combine or have an understanding about the giving of credit to contractors for fear they will be charged with maintaining a trust or with boycotting. Yet I maintain that it is perfectly lawful for business men to agree that before they should sell material to any contractor whose credit is not satisfactory, they would take a sub-contractor's lien. It would result about as follows: John Smith, whose credit was not satisfactory, would go to a supply man named A. He would get his prices on a job of work. A would agree to sell him certain materials for the job. Before he delivered any of the material A would serve notice upon Smith that he asserted a lien against the fund coming to Smith from his owner. Smith would immediately get mad and cancel his order with A and would go to B. The latter would take his order, serve the sub-contractor's lien. Smith would get mad again, cancel his order and go to D. D would accept his order, take a sub-contractor's lien in pursuance of the agreement of all the suppliers, etc., and so on, until he gave satisfactory credit. This sort of an agreement would be an agreement to enforce the law and not

to violate it, and would not be within the inhibition of our trust law.

I therefore maintain, that if the subcontractors' lien law were better understood by those men who have use for it, they would accomplish a great deal more with it. I say to you, and it is my honest judgment, that although we might have the subcontractors' lien law amended as suggested by Mr. Hunter, it would be of no particular assistance to you until you thoroughly understood its practical operations, and the best methods of getting results with it. To that end, it would be expedient that your association take some steps to familiarize your members with this law and how best to use it.

Albert Gowan's Talk on Profits.

The next speaker was Albert Y. Gowan, of Cleveland, who spoke on "Best Methods to Determine Profits on Builders Supplies." Mr. Gowan is the secretary and treasurer of the Cleveland Builders Supply Co., and a practical man in the business. He said there is not an accountant but knows well how to get at results determining profits. He explained that a set of purchasing and sales books should be kept, to enter in each the price and amount of material purchased and price and amount of material sold. The overhead expenses, which include rent, interest on investment, salaries and other items, should be added to the quantity of material entered in the purchasing books. An inventory taken at the time to determine the profits, which was required with his company every month, showed the quantity of material to be deducted.

The difference then between the totals for the month in the two sets of books determined the amount of profit or loss, and it was an easy matter to figure the cost of any material handled. This, he stated, is the only way to find accurately if business is done on a profitable basis.

Mr. Gowan also spoke of many details simple in their way to arrive at the general result. He was listened to with marked attention and received a vote of thanks for the lucid and clear manner in which he had presented the subject. Mr. Jones also received a vote of thanks for his able paper, and in the discussion following the reading of his paper answered many questions concerning the lien laws as they now exist.

The meeting then adjourned to Friday morning at 10:30 o'clock.

MORNING SESSION FRIDAY, JANUARY 21.

The business meeting was called to order by President Frank Hunter, with Bert G. Graham at the secretary's desk.

The minutes of the previous meeting were read by Secretary Graham and adopted. This was followed by the reading of reports of Treasurer R. E. Doyille and Secretary Bert J. Graham, reports of committees and communications.

Under the head of new business the association took up such matters as had been before the association during the past year. It was moved, seconded and carried that the association employ an organizer in the state.

The following officers of the association for the year were elected:

- W. A. Fay, of Cleveland, president.
- Bert J. Graham, of Cleveland, secretary.
- R. E. Doyille, of Toledo, treasurer.
- Dan A. Raridan, of Athens, first vice-president.
- Eugene Cook, of Newark, second vice-president.
- J. Q. Adams, of Coshocton, third vice-president.
- W. O. Holst, of Toledo, fourth vice-president.
- J. L. Price, of Marion, fifth vice-president.

Two members were placed on the executive committee: Howard Arnold, of Dayton, and D. K. Thompson, Jr., of Columbus. They with the officers constitute the committee.

PRESIDENT HUNTER'S VALEDICTORY.

President Frank Hunter then delivered his valedictory address, as follows:

This, our fourth annual meeting, affords us the opportunity of looking back over a period of three years and into what the Ohio Builders' Supply Association has accomplished in the way of bettering the conditions of the builders' supply men of Ohio. As to how much has been done for the members of the association, and whether or not the course pursued in the deliberations of this body has affected the general interests allied in this state should now be, in a measure at least, determined. If you see in this short period of existence that some good has been accomplished, then we should determine in our minds what other means can be employed by this body to further its interests.

The Ohio Builders' Supply Association is primarily a business body, instituted for the purpose of bettering our condition. Unfortunately the officers have had but little time owing to the strenuous task of looking after their own affairs to pursue a well defined line of action necessary to make the association what it should be.

We have long since come to the conclusion that there is a common ground in the affairs of the builders' supply industry that we can consistently stand upon, and which becomes a mutual advantage to all. The idea of the association is that the members may bring their difficulties, troubles and experiences at least once a year and dump them into one common heap, so that by the advice and wisdom of the entire body help can be administered in

tion than anyone else. The local organization should and must be the foundation stone of the state organization.

Any organization in order to be practical must show substantial and beneficial results, especially when applied to business efforts. If a local organization can be perfected through the intervention of the State organization, and the organized body prospers and makes money, it eventually follows that all the dealers in the State will help to keep the state organization in existence, if for no other reason than that of good business.

I believe the time is ripe for a movement of this kind. There never was a time when the builders' supply interests of the state were at so low an ebb as the present. They can never go lower, and I believe the turning point is at hand. A movement such as I suggest will, in my estimation, prove a popular one.

In making these suggestions I want it fully understood that I only favor such a course in seeking to better our condition as will be in strict conformity with the law.

The line of action on the part of an organizer should be—in his interview with the dealers of the State—on the basis of sure and legitimate profits, and the things to be considered should be, first, the capital invested; second, the cost of operation; third, the depreciation of building and equipment; and fourth, the average loss in bad accounts based on past experience. When all these essentials are carefully ascertained, then legitimate profits should be added.

A good organizer can take these matters up along the above lines with each dealer in every town and city, where two or more exist, and complete the work by organizing a local organization and getting the members to join the state organization. The work should be systematically and carefully done, and town after town and city after city visited, until all the dealers in the state are practically working along the same lines.

Our association is all right in theory, but from a practical standpoint we lack in systematic and persistent method. The real business end is neglected, possibly there is too much attention devoted to having good time. The purpose of the organization is good, but we lack in execution. Why? Because there is no one, under the present method, able to give such attention, unless he makes it a business and is paid a reasonable compensation for his services.

I offer these suggestions because they occur to me, and are the conclusions that I have reached after being in competition for the past eight years, during which time I have given a great deal of study to the question. To improve our condition we must have an active business head, and I believe we can well afford to pay reasonably for it. If we do not do something along the lines suggested you will eventually find the dealer growing lukewarm in our State organization, and as time goes on it will degenerate into an useless body and probably go out of existence.

Let us now earnestly men business and work hard to gather the good results that we started out to find.

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offer does not appeal to him, he will throw your samples and literature in the corner, even though he has agreed to represent you, and forget you are on earth.

What One Hustler Did.

We had a dealer in a large city who said he could not sell a certain shade of our product; that it could not be sold. We had done a large business on our shades with this fellow and he had held the agency for our entire line for two years. I asked for the privilege of placing the agency for the shades he could not sell in the hands of some other dealer; he had not the nerve to refuse this request, so I did place the agency in the hands of one of his competitors, and within 60 days he disposed of our entire stock and had orders ahead. Then the dealer, who could not sell, wanted us to cancel our agreement with the dealer who did sell. We often hold shades of brick at our plant for a long time until, in fact, we wonder if we will ever be able to get rid of them, when all of a sudden someone comes along and takes them off our hands and is made happy because they are just what was desired.

It is unfair for the dealer to accept an agency unless with the expressed determination to push the article, put it in stock, display it, know its strength and adaptability and offer it to the trade even against his personal opinion. A lot of dealers will not give a new line any consideration. They are satisfied with the old or are too busy to give an audience to the man with the new thing. While I was in New Jersey this fall I went into the offices of the three big dealers in a large New Jersey city. All of these dealers said they would like to deal with the manufacturer and cut out the big New York jobbers, but every one of them was too busy to give me an audience. We were compelled to place our line in the hands of a New York jobber and assigned to him the entire New Jersey territory because of this lack of common courtesy.

These same dealers have the gall to come out in their literature urging their members to cut out the manufacturer who sells direct. The dealer who thinks must know that when a manufacturer has his money behind a proposition that he is going to do some tall fighting to market his product; that if he cannot find, in the territory he desires to cover, dealers who will conscientiously represent him, he will either create new dealers who will or market his product direct.

The reception accorded me when I started out four years ago was about as cold nose as anything a red blood man would want to steer into. The dealers had old established agencies and felt that there were plenty of brick being made to supply the trade and turned me down with but little consideration. The result was that we established seven new dealers in the State of Ohio, gave them financial backing and all of the inside information on the brick question that we had to offer. Five of the seven agencies are still in existence and growing and handling our product. Some of the dealers, who at first turned us down, recognized the merits of our product and are handling the same now to our mutual advantage.

Dealers Need Not Fear.

The dealer need not fear the small manufacturer on the direct sales proposition, but when a concern produces enough to warrant the establishing of private offices, the dealer has got to stand up and take notice. Every argument should be in favor of the dealer, his facilities for making deliveries to the job, his close personal and social relationship with his customers and his familiarity with their personality all are trump cards in his hands and should render for him all of the business that should fall to the dealer. I do not believe there ever was a time when the dealer was as firmly entrenched as he is now. He is necessary for the economical, speedy and satisfactory distribution of the product in which he deals and if he wishes to gain ground, let him treat all manufacturers squarely, let him make it unnecessary for a manufacturer to look for business direct, let him represent everything he agrees to represent and do it intelligently, let him understand that the manufacturer is going to sell his product, if it has merits, one way or another. Let him also remember that human beings are like sheep, they follow the leader, and that where one contractor begins to purchase his lime, cement and brick, or whatever the material may be, direct at a saving to himself, that other contractors are going to do likewise and that therein lies his downfall.

We market about 90 per cent of our product through the dealer and the other 10 per cent is marketed in territories where the dealers will not go to the trouble of handling brick. We would like to sell all our product through the dealer and I believe that if this organization attains the result for which it is working, the direct sales from the manufacturer's standpoint will not be of enough importance to make the subject enough to call upon such as I to harass you in the future.

"DIRECT SALES FROM THE DEALER'S STANDPOINT."

By William Smith, of Newark, O.

President Fay then introduced William Smith, of Newark, O., who, he said, would read a paper on the same subject from the standpoint of the dealer. This was favorably commented upon by all the members of the association for its straightforward and fair treatment of the subject in all its details.

Mr. Chairman and Gentlemen of the Convention: Some years ago in a political convention of one of the great parties an excited spokesman who thought that the slate was in danger of being broken excitedly arose and startled the convention by asking in a voice of thunder the pertinent question, "What are we here for?"

This unexpected but somewhat humorous warning soon steadied the delegates and brought them back again to first principles, namely, looking after the spoils. This happened in a political convention where schemes, plots and counterplots were the order of the day, and where the sinister meaning of the query was well understood by all. Now, this query stripped of this sinister import is, I think, pertinent and worthy of suggestion to this body. Therefore, I ask, "What are we here for?" Surely for no sinister motive or to make a slate, nor to defeat one another by any scheme.

The Builders' Supply Association, as I understand it, stands for good fellowship among its members and equitable trade relations between manufacturers and dealers, demanding a square deal for all, they ask for nothing but what the best trade ethics recognize as right.

In discussing the subject of direct sales from the dealer's standpoint, I find the subject a large one and full of many perplexing propositions. I will not attempt to

exhaust the subject, but will content myself with a few observations that I trust will help to a better understanding of the subject before us. I do not expect to diagnose this case accurately, but will endeavor to give a few symptoms of the patient and possibly you can better prescribe the remedy. In this matter I am somewhat like the lady who sent a note to her family physician, stating that she had mumps and requested that he call at once. The doctor on arrival informed the lady that she had rheumatism—not mumps, and asked why she wrote mumps in her note. Somewhat embarrassed, she replied, "Doctor, when I sat down to write that note I found that no one in the house knew how to spell 'rheumatism'."

Conditions are Not Satisfactory.

Now, gentlemen, the conditions existing between the manufacturers and the dealers in building supplies is far from satisfactory to either branch of the trade, as you are all aware—hence, the question suggests itself, "What can or should be done by this association to bring about a more satisfactory state of affairs between both branches of the trade?" Conditions during the past year, especially in cement, were the most unsatisfactory as far as results are concerned that the dealer has ever been up against, and I believe the same statement will apply with equal force to the manufacturer's experience. Never before did the cement manufacturer sell his product so cheap. Never did retailer or dealer experience such exasperating competition as that of the past year.

Some cement manufacturers, in their greed for trade, or jealous of the larger business done by some of their competitors, recognized none of the ethics of trade, none of the rights of the dealer, especially when the dealer handles some brand of cement other than theirs. If they could not sell a particular dealer in a town they would sell the dealer's customers, thereby injuring the local man, demoralizing local prices and incidentally rapping the manufacturer who enjoyed this particular dealer's business. Farmers, contractors or any consumer them at any time just as cheap if not cheaper than could the regular dealer. It made no difference to them that who happened to need a car of cement could get it from the dealer had invested his money in a stock of such goods, devoted his time to the distribution of same, and by advertising and push had forced cement to the prominent position held by it today throughout the building world. Now the dealer was really the manufacturer's agent—his best friend—consequently, the safest, least expensive and most natural channel through which to market his product.

Their policy seemed to be to "rule or ruin," and as a result the dealer finds himself in the last ditch where he must defend himself against their destructive methods.

While this indictment is true of many of the cement manufacturers, I am happy to state that there are still a large number who confine their business to regular lines of legitimate trade, who protect the retailer by every means in their power; who do not sell to every Tom, Dick and Harry; who post the dealer on all inquiries received from his locality, recommends the dealer to the prospective buyers, and refuse absolutely to be a competitor in the local trade of any dealer. These are the practical fellows in the business and they should have the loyal support of all members of this association. If this method of protection were practiced by all the manufacturers, better results would obtain for both branches of the business; but, unfortunately, this much desired condition is not as general as it should be, and that is a good reason for the consideration of this subject today. Self-protection demands this of us.

A majority of cement manufacturers, like manufacturers in other lines of trade, recognize the retail dealer as essential to their welfare, as the safe and natural channel through which to reach a consuming public, and would welcome some plan of equitable co-operation between both branches of the trade. Unfortunately, a small per cent of the manufacturers seem to have no regard for established laws of trade or any consideration of the rights of dealers; therefore it behooves us as dealers to protect ourselves through our associations, state and national, against this "wildcat" business.

I do not know whether a code of ethics on trade relations between manufacturers and dealers has ever been considered by the two bodies or not, but if not, an effort should be made by the National Builders' Supply Association to have it consummated at an early date.

In the meantime, I would suggest that this association "get busy" and put in operation a campaign on the following lines:

Suggestions to Dealers.

- (1) I would have the convention clearly define what constitutes a dealer in builders' supplies.
- (2) What class of consumers the manufacturer can sell to direct.
- (3) Under what conditions other consumers can be sold to direct.
- (4) Only buy from manufacturers who protect dealers in their right.
- (5) Report to state secretary all wildcat business done by manufacturer in dealer's territory.
- (6) The secretary of the association, upon receipt of complaint from local dealer, shall promptly demand satisfaction from shipper for such trade interference, and notify all members of this association of the result.
- (7) That all members faithfully direct their purchases in accordance with the secretary's information in such matters.
- (8) That a local association be formed in every city in the state where two or more dealers are already established.

Now, gentlemen, it seems to me that these few rules, though crude, will, if put into effect by all the members, soon bring about an improved condition of affairs as regards our relation with the manufacturer.

When our secretary informs us that a certain firm is still doing a wildcat business and refuses to do anything else, we must be loyal to our association and true to ourselves by faithfully following that information; and when a representative of such a concern calls at your office soliciting business, as they are sure to do, tell him plainly that you have decided to give your business to the manufacturer who respects and protects the retailer in his trade rights. He may not relish this information, but the effect if repeated to him by the 100 other dealers of the association—who also are posted as to his record—will, I think, soon have a curative effect on his perversity. He may appear indifferent and even defiant to the opinion of a dealer in a particular town, but when he learns that there are 92 more dealers in the State who are advised and are acting as one man in this matter, he will soon come to his senses and get in under shelter.

If the various members of the association go home from this convention with the determination to do more work for the upbuilding of this organization than they have done in the past, are vigilant and aggressive in the work of the association, unite all the local people in the work and have every local dealer who is not now a member of the state association put in his application for membership at once, we will, I believe, with the aid and co-operation of the other state builders' supply associations, soon effect the dawn of a better day; and while we have good and efficient officers, who are ever zealous in promoting the welfare of this organization, we must realize that this important work will depend in a large measure upon the zeal of the individual members of the association.

Therefore, "let us put our shoulders to the wheel and altogether" lift this vehicle of trade from the mire of the byway to the solid footing of the commercial highway.

Presentation to President Hunter.

Before the close of the meeting Harry Blum, of Toledo, on behalf of the members of the association, in a brief speech full of feeling, presented Mr. Hunter with a fine silk umbrella as a slight token of their regard and esteem for the services he had rendered the association during his term of office the past year. Mr. Hunter thanked the members for this unlooked for expression of good feeling, as well as having conferred upon him the honor of electing him to the presidency a year ago, and assured them that he would continue to help the association in its efforts to raise the business of the dealer to a higher plane, as he had tried to do during his administration.

The convention then adjourned.

THE ATTENDANCE.

George B. Christian, Jr., Marion, O., Builders' Sup. Co., Columbus, O.
D. K. Thompson, Jr., Columbus, O., Builders' Sup. Co., Columbus, O.
Charles H. Niermeyer, Jr., Columbus, O., Coal & Lime Co., Columbus, O.
W. C. Hunter, Builders' Sup. Co., Columbus, O.
R. S. Rhoads, Am. Sewer Pipe Co., Akron, O.
W. H. Black, Ohio & Western Lime Co., Huntington, Ind.
Jul. M. Marlon, Ohio & Western Lime Co., Huntington, Ind.
Kent E. Lyman, Jamestown Paint & Varnish Co., Jamestown, Pa.
E. W. Hawkes, American Sewer Pipe Co., Columbus, O.
E. J. Koch, Universal Portland Cement Co., Pittsburg, Pa.
Morris M. Hunter, Edison Portland Cement Co., Pittsburg, Pa.
Charles V. Reel, Edison Portland Cement Co., Pittsburg, Pa.
W. W. Fishback, Fishback Plaster Co., Toledo, O.
P. R. Clark, General Fireproofing Co., Youngstown, O.
C. H. Brigham, Atlas Portland Cement Co., New York.
W. H. Link, Toledo, O., American Cement Plaster Co., Lawrence, Kan.
H. E. Johnson, J. P. Carille, Columbus, O.
M. A. Maher, Greenville, O.
C. J. McCormick, Columbus, O.
B. W. McCausland, Jr., Cleveland, O., United States Gypsum Co.
F. H. Holland, Cleveland, O., Kelley Island Lime & Transport Co.
Charles Schmutz, Youngstown, O., Crescent Portland Cement Co.
F. B. Jones, Toledo, O., Acme Coal, W. & B. S. Co.
C. A. Herstein, Chillicothe, O.
Frank Schenkle, Mineral City, O., Federal Clay Product Co.
D. L. Jenkins, Niles, O., Bostwick Steel Lath Co.
C. E. Cochran, Newark, O., Newark-Stone & Plaster Co.
John C. Dennison, Pittsburg, Pa., National Mortar Sup. Co.
P. A. Jandernal, Cleveland, O., Lehigh Portland Cement Co.
T. W. Murray, Detroit, Mich., Trussed Concrete Steel Co.
S. B. Goucher, Toronto, O., National Fire Proofing Co., Pittsburg, Pa.
O. C. Ingalls, Columbus, O., East Side Coal & Builders' Sup. Co.
Frank W. Welsh, Columbus, O., American Cement Plaster Co., Lawrence, Kan.
C. W. Burwell, Castalia Portland Cement Co., Cincinnati, O.
H. W. Brock, Ward-Brock Sash & Door Co., Cincinnati, O.
W. E. Viets, Lehigh Portland Cement Co., Cleveland, O.
Clifford Stabler, Mason Lumber Co., Mason, O.
C. I. Hammond, Hamilton-Parker Fuel & Sup. Co., Columbus, O.
E. W. Parker, Hamilton-Parker Fuel & Sup. Co., Columbus, O.
David Shitzer, Hamilton-Parker Fuel & Sup. Co., Columbus, O.
G. M. Mossman, Huntington, W. Va., Mossman Bros. Co.
Theodore H. Elwell, United States Gypsum Co., Cleveland, O.
T. H. Clark, Knox Coal Co., Mt. Vernon, O.
B. F. Andrew, Toledo, O., Lehigh Portland Cement Co., Cleveland, O.
Thomas Jenny, Pittsburg, Pa., Columbus Builders' Supply Co., Columbus, O.
A. J. Rooney, Columbus, O., American Sewer Pipe Co., Akron, O.
W. A. Gipson, Upper Sandusky, O.
M. C. Pyles, National Fire Proofing Co., Canton, O.
A. B. Hany, National Fire Proofing Co., Canton, O.
E. R. Kissinger, E. C. Kissinger, Columbus, O.
E. R. Kissinger, E. C. Kissinger, Columbus, O.
J. P. Carille, Columbus, O.
Frank Hunter, Columbus, O.
A. C. Armstrong, Cincinnati, Houston Bros. Co., Pittsburg, Pa.
H. L. Jennings, Houston Bros. Co., Pittsburg, Pa.
Henry Angel, Cleveland Builders' Supply Co.,

John B. Van Wagener, London, O.
 Dan A. Raridan, Athens, O., Raridan Bros. Lumber Co.
 A. L. Bowers, American Sewer Pipe Co., Akron, O.
 John J. Crisp, Akron Storage & Com. Co.
 J. A. Garretson, Columbus Builders' Supply Co.
 W. V. Holst, Toledo, O., W. V. Holst Builders' Supply Co.
 E. C. Van Epps, Cleveland, O., American Gypsum Co., Port Clinton, O.
 W. H. Kerman, Napoleon, O., American Gypsum Co., Port Clinton, O.
 A. B. Black, Sales Mgr., American Gypsum Co., Port Clinton, O.
 F. J. Griswold, Gen'l Mgr., American Gypsum Co., Port Clinton, O.
 William B. Knight, Columbus, O., American Gypsum Co., Port Clinton, O.
 F. P. Childs, New Lexington, O., Crescent Supply Co., Marietta, O.
 Harry Miller, Marietta, O., Crescent Supply Co., Marietta, O.
 Charles Frank, J. Rapp & Co., Columbus, O.
 H. R. Butler, Ada (Coal & Lumber Co.), Ada, O.
 E. W. Emerson, Union Lumber Co., New Philadelphia, O.
 C. S. Bigsby, Bigsby Mfg. Co., Cleveland, O.
 Charles Dree, American Lumberman, Chicago.
 F. E. Clark, Sall Mountain Asbestos Mfg. Co., Chicago.
 J. E. Cooper, Robinson Clay Product Co., Akron, O.
 W. G. Smith, Twin City Lumber Co., Uhrichsville, O.
 W. A. McCall, Dealers' Record, Chicago.
 F. W. Thompson, Coshocton, O., A. H. Thompson & Son.
 R. E. DeVille, Ohio Builders' Supply Co., Toledo, O.
 C. Lowe, The Mason Lumber Co., Mason, O.
 J. F. Hunter, Columbus, O., Atlas Portland Cement Co., New York.
 R. H. Hughes, New Castle, Pa., Crescent Portland Cement Co., Wampum, Pa.
 J. C. Raridan, Athens, O.
 F. R. Van Hamm, Chicago, ROCK PRODUCTS.
 C. L. Duocety, I. G. Tolston & Son, Alliance, O.
 E. E. Stillwell, Bellefontaine, O.
 E. F. Greg, Gallon, O., Toledo Pulp Plaster Co., Toledo, O.
 E. G. Pettit, Crooksville, O.
 R. S. Cope, New Castle Portland Cement Co., New Castle, Pa.
 C. A. Erwin, Columbus, O., United State Gypsum Co., Cleveland, O.
 William Price Miller, Gary Iron & Steel Co., Cleveland, O.
 T. L. Hughes, Columbus, O., Universal Portland Cement Co., Pittsburg, Pa.
 M. O. Sherer, Louisville, O.
 W. M. Adelberger, Star Coal & Cement Co., Dayton, O.
 J. C. Bay, Cumberland, O.
 E. E. Denune, Linden Heights, O., Denune Builders' Supply Co.
 Louis J. Snyder, Lancaster, O.
 M. R. Raymore, Superior Portland Cement Co., Cincinnati, O.
 H. J. Rauch, Superior Portland Cement Co., Cincinnati, O.
 Charles E. Justus, Columbus, O., Bigsby Mfg. Co., Cleveland, O.
 O. E. Rabuck, West Union Lumber Co.
 B. B. Brill, Columbus, O., J. A. & W. Brill & Co.
 J. W. Pritchell, Columbus, O., F. W. Bird & Son, E. Walpole, Mass.
 Paul M. Wade, Philadelphia, Pa., United Roofing Co.
 E. W. Long, Cadiz, O., E. W. Long & Sons.
 L. E. Fishack, Toledo, O., The Fishack Plaster Co.
 O. H. Hummelright, Piqua, O., United States Gypsum Co., Cleveland, O.
 S. G. Webb, Columbus, O., United States Gypsum Co., Cleveland, O.
 B. Pelton, United States Gypsum Co., Cleveland, O.
 Milton Yoder, Belle Center, O., Lumber Co.
 H. W. Blocksone, Cleveland, O., United States Gypsum Co., Chicago, Ill.
 A. B. Willson, Columbus, O., East Side Coal & Builders' Supply Co.
 J. C. Neely, Canton, O., Neely & Fenall.
 William J. Conrad, Marysville, O.
 C. W. Sprinsler, Marietta, O., Bricker Mill Co.
 J. L. Price, Marion, O., J. L. Price Co.
 J. P. Degan, Toledo Builders' Supply Co., Toledo, O.
 Harvey Blum, People's Builders' Supply Co., Toledo, O.
 W. E. St. Clair, Sandusky, O., Castalia Portland Cement Co., Castalia, O.
 O. C. Maurer, Toledo, O., Woodville Lime & Cement Co.
 G. H. Taist, Toledo, O., Woodville Lime & Cement Co.
 J. J. Verschell, Toledo, O., Woodville Lime & Cement Co.
 G. T. Uthoff, Toledo, O., Woodville Lime & Cement Co.
 Fred C. Bishop, Centerburg, Ohio.
 Bert J. Graham, Secretary Cleveland Builders' Supply Co.
 R. B. Bilders, Canton, O.
 William H. Ostman, Dayton, O., McGregory & Ostman.
 Geo. H. Gengnagel, Dayton, O., Schaeffer & Gengnagel.
 S. S. White, Bucyrus, O., White Lumber & Coal Co.
 A. Y. Gowen, Cleveland Builders' Supply Co.
 O. P. Ferriman, Cleveland, O., Forrester Plaster Co.
 William H. Smith, Newark, O., P. Smith Sons Lumber Co.
 O. H. List, Cleveland, O., Kelley Island Lime & Transport Co.
 W. A. Fay, Cleveland, O., Lake Erie Builders' Supply Co.
 A. C. Long, Cadiz, O., E. M. Long & Sons.
 Charles A. Smith, Newark, O., Newark Lumber Co.
 E. J. Koss, Newark, O., Newark Lumber Co.
 G. C. Dudley, Wauseon, O., Lumber Co.
 C. C. Coyle, Gallon, O., Lumber Co.
 H. A. Paunder, Gallon, O., Lumber Co.
 Charles W. Schaeffer, Dayton, O., Schaeffer & Gengnagel.
 Howard B. Houold, Dayton, O., Builders' Supply Co.
 John W. Eichelberger, T. D. Eichelberger & Sons.
 A. C. Davis, Columbus, O., South Side Lumber Co.
 A. C. Steece, Ironton, O., Portland Cement Co.
 Charles M. Nicklaus, American Sewer Pipe Co., Columbus, O.
 E. F. Langner, Cleveland, O., Langner Mfg. Co.
 G. B. Harkney, Newark, O., Art Stone & Plaster Co.
 W. S. Hawthorn, Dayton, O.
 J. O. Adams, Coshocton, O., Lumber Co.
 Brig. Young, Findlay, O., Haywood & Young.
 A. D. Madden, Clarksville, O.

T. C. Madden, North Lewisburg, O.
 A. J. Mueller, Lockland, O., John Mueller.
 N. C. Runyon, Jr., Cleveland, O., Lake Erie Builders' Supply Co.
 C. J. Maher, Jr., Greenville, O., M. A. Maher.
 Henry D. Yates, Delaware, O.
 H. I. Brungart, Columbus, O.
 J. W. Smith, Portsmouth, O., Smith Lumber Co.
 F. W. Welch, Columbus, O., American Cement Plaster Co., Lawrence, Kan.
 E. H. Curtis, Sycamore, N. Y., Clinton Metallic Paint Co., Clinton, N. Y.
 W. D. Kall, Columbus, O.
 J. A. Brownand, Spencer, O., Ingraham & Brownand.
 C. E. Wagner, Mt. Gilead, O., Wagner & Beon.
 C. F. Harwood, Cincinnati, O., Superior Portland Cement Co.
 John E. Parrott, Dayton, O., Fiber Plaster Co.
 A. H. Gallagher, Toledo, O., Ohio & Bemis Retarder Co.
 E. S. Smith, Toledo, O., Woodville Lime & Cement Co.
 Frank Lowe, Columbus, O., F. W. Bird & Son, E. Walpole, Mass.
 M. Smith, Newark, O., P. Smith Lumber Co.
 H. E. Kendrick, Delaware, O., Scioto Stone & Lime Co.
 P. R. Harrison, Columbus, O., Grand Rapids (Mich.) Plaster Co.
 Douglas Mallock, Chicago, American Lumberman.
 W. S. Foster, Detroit, Mich., Trussed Concrete Steel Co.
 E. L. Abbott, Columbus, O.
 George J. Markley, Mineral City, O., Federal Clay Product Co.
 W. W. Bottinfield, Delaware, O., Clark & Bottinfield.
 D. W. Evans, Columbus, O., Columbus Macadam Co.
 S. C. Kissner, Coshocton, O.
 John Jauch, Columbus, O., J. Rapp & Co.
 H. D. Reichelderfer, Circleville, O., Reichelderfer Bros.
 C. F. Reichelderfer, Circleville, O., Reichelderfer Bros.
 Mrs. J. W. Thomson, Coshocton, O.
 Mrs. C. I. Hammond, Columbus, O.
 Mrs. George H. Gengnagel, Dayton, O.
 Mrs. W. H. Ortmann, Dayton, O.
 Mrs. Bert J. Graham, Cleveland, O.
 Marie A. Borchers, Columbus, O.
 Helen M. Foerster, Columbus, O.
 Mrs. Frank Hunter, Columbus, O.
 Miss Lida Judge, Columbus, O.

CONVENTION NOTES.

W. P. Miller, special agent for the Gary Iron and Steel Co., was in attendance on the convention, popular and jovial as ever. He will sever his connection with this great corporation the first of next month. He will open an office next month in Baltimore as a manufacturers' agent, taking in the territory of Philadelphia, Baltimore, Washington and Virginia. He is a live wire and is open for any accounts and propositions in that section of the country. Establishing a great business for himself he felt in need of a partner, who will guide and direct his affairs in the very near future—a charming lady now residing in Canada. His bachelor days are drawing to a close and his jovial presence on the road will be missed by hosts of friends.

Frank Hunter, former president of the Ohio Builders Supply Association and secretary and treasurer of the Columbus Builders Supply Co., has severed his connection with the company of which he was an officer for the past eight years. He felt he needed a rest and vacation. He has not yet chosen his future field of activity.

Francis J. Colgan, of the Colgan Machine Works, of Columbus, was at the convention. He is building a new machine to manufacture concrete blocks by the wet process. It will embody the best types of all machines on the market. It will make a hollow block, a silo block, two piece wall construction, veneer wall, porch column and chimney blocks, including all sizes in length from one to sixteen inches and in width from two to twelve inches for one price. To make 20-inch blocks only requires an additional expense of one face plate and the same addition to make the 24-inch block, bringing the cost of the machine for all sizes to a cost unheard of in concrete machinery. He expected to exhibit it at this convention, but the time was too short. He probably will have it on exhibition at the Cement Show at Chicago.

W. A. Fay, elected president of the O. B. S. A., is now the general manager of the Lake Erie Builders Supply Co., of Cleveland, O. He says business is opening up fine, and as usual in the past he will make the fur fly in his new connection with the company of which he is the guiding spirit.

H. F. Rauch, formerly with the "Whitehall," has been representing since the first of the year the Superior Portland Cement Co., was looking happy and energetic, greeting his many friends at the O. B. S. A. convention.

Earle W. Hawke representing the American Sewer Pipe Co. at Columbus, kindly volunteered to take charge of the registry of members of the Ohio Builders Association, who came to the Southern hotel, which much appreciated by the organization.

F. J. Griswold, general manager of the American Gypsum Co., of Port Clinton, O., was at the convention with five of his able lieutenants in the sales department. He reports business opening fine and that there will be more than "something doing" this year.

E. M. Koch and T. L. Hughes, of the sales department of the Universal Portland Cement Co., were busy shaking hands with their friends from the northern and southern sections of Ohio, which is the territory they make Universal cement fly in. They say this will be the biggest year on record.

Theo. H. Ellwell, of the sales department of the United States Gypsum Co., covered the ground of the convention well. He seemed to know everybody and all were pleased to meet him. "Great business ahead of us this year," he said as he spied a prosperous looking dealer, with whom he soon was in earnest conversation.

E. F. Langner, of the Langner Manufacturing Co., of Cleveland, was at the convention and told his friends that their iron specialties machinery required more than full time running their plant to meet the demand.

A. B. Haug, of the sales department of the National Fire Proofing Co., at Canton, O., was one of the live wires representing manufacturers' interests. He reported a heavy demand for his material this month, and as building operations in every section of the country promised to exceed any in past years he thought 1910 would be a record breaker.

OHIO LUMBER DEALERS' CONVENTION.

COLUMBUS, O., Jan. 20.—In round numbers there were some 600 dealers in attendance at the 28th annual convention of the Union Association of Lumber Dealers, January 18-19-20. The gathering was an unusually large one and will be remembered for a long time as one of the notable events in this city. The sessions were characterized by lively and friendly discussions of much importance to the lumber dealers, and the question of supply and demand of lumber also came in for a big share of attention.

The convention was called to order early on the afternoon of Tuesday, January 18, with President J. Elam Artz in the chair. He delivered the annual address, after which the annual reports of Secretary A. S. Adams and Treasurer F. S. Torrence were read. In the evening a complimentary entertainment was furnished by the Columbus wholesale lumber dealers, who invited all lumbermen and their families to the Southern Theater, adjoining the hotel.

A joint session was held Wednesday forenoon with the Union Association of Lumber Salesmen. Disappointment was expressed when a letter from H. S. Sackett, of the U. S. Forest Service, was read, stating that permission previously given by Gifford Pinchot to attend the convention had not been ratified by the Agricultural Department at Washington. Mr. Sackett was to deliver an address on "The Waste Incident to the Manufacture of Even Lengths Only in Yellow Pine." Secretary Adams presented the subject of "Odd and Short Lengths," a paper replete with vital questions.

At the afternoon session an address was delivered by Commissioner O. P. Gothlin, on "The Railroad Commission of Ohio; Its Relation to the Public," and Arthur L. Holmes, secretary of the Michigan Lumber Dealers' Association, told about the workings of "The Scout," of which paper he is the editor. Mr. Holmes has been a successful leader in association work for many years.

At the closing session, January 20, the old officers were reelected for the ensuing year, headed by President J. Elam Artz, of Dayton, and the association changed its name to the Ohio Association of Retail Lumber Dealers.

Many neat souvenirs were distributed at the various headquarters. Among the most popular, perhaps, was a souvenir of a combination of badge and saw fob of German white metal, distributed by the saw manufacturing firm of Henry Diston & Bros., of Philadelphia.

Convention Develops a Poet.

Of the firms dealing in builders' supplies, A. C. Long had charge of the exhibit of E. M. Long & Sons, of Cadiz, Ohio. They have the agency in eastern Ohio of the Dexter Portland Cement Co., of Nazareth, Pa., and for Congo roofing, in which territory they have found a heavy demand for both these products. Mr. Long made a hit in the hotel when, one morning early, he was seized with a poetic spasm and exhibited the following verse on a large placard:

You've heard it said, and so have we,
 I'm from Missouri, you'll have to show me;
 We're here with the goods in Parlor Q.
 Now have a look; it's up to you.

Large placards throughout the hotel informed visitors that "Teddy was down on the Congo river, but nobody is down on the Congo roofing," which brought many callers to the headquarters of the United Roofing & Mfg. Co., of Philadelphia, over which Paul M. Wade, of the sales department of the firm, presided. Mr. Wade stated his was the only concern that places a National Security bond in every roll of roofing, and if it does not stand the test of ten years, the

surety company makes good. He told callers that they had shipped one and a half million square feet of this roofing to the Philippines and over a million square feet to Cuba, for use on the barracks of the U. S. government. A pocket looking glass went away with every caller.

Ben A. Williams, assistant secretary of the American Cement Plaster Co., of Lawrence, Kan., presided over its headquarters in the hotel. He enjoyed his stay here greatly, he having been raised in this neck o' woods, not more than eighteen miles from Columbus. His friends told him he had become younger and better looking since he deserted them for Kansas. Popular and making a great success of his company, he was welcomed by everyone. Frank H. Welsh, the local representative having southern Ohio for his territory, and W. H. Link, of Toledo, having northern Ohio for his territory, assisted Mr. Williams in receiving callers.

Known By His Hair.

The exhibit and headquarters of the Sall Mountain Asbestos Manufacturing Co., of Chicago, making the Reliance Rubber Roofing, was in charge of F. E. Clark, one of its stockholders. The affable young woman who was stationed at headquarters to dispense souvenirs, consisting of an excellent large lead pencil, roofing literature and register the names of callers, told a visitor that Mr. Clark could easily be found in the lobby, as he was the most distinguished looking gentleman there, having flowing auburn hair and mustache, and he could not help but notice him. The young woman's descriptive powers were excellent and not a bit overdrawn.

The Atlas Portland Cement Co. was represented by C. H. Brigham, of the local sales department. He was conspicuous in the lobby by reason of the large number of people who continually shook hands with him, and for whom he always had a ready answer and a pleasant smile. He said, "It's easy to feel good natured when a fellow has a good thing to talk up."

The United States Gypsum Co.'s interests were taken care of by three representatives of its sales department, T. H. Elwell, whose headquarters are in Columbus, and whose territory is southeastern Ohio; O. H. Himmelright, of western Ohio, known to all his friends as "Him all right," or Bill Nye, on account of his strong resemblance to the part and his natural inborn wit; and H. W. Blocksom, who reports that he is going to represent the U. S. Gypsum Co. at Pittsburg and that B. Pelton is to succeed him in his former territory, covering northeastern Ohio. Mr. Pelton was formerly the manager of the Wood Lumber Co. at Medina, Ohio.

D. D. Clark, a prominent lumber dealer in Alexandria, Ohio, who handles a full supply of builders' supplies, was given a hearty reception by his numerous friends attending the convention. He told them that business never looked so bright to him as this year.

F. M. Smith, of D. P. Smith Sons Lumber Co., of Newark, Ohio, among the old and best known dealers in lumber and builders' supplies, was at the convention and was in demand every minute. He told his friends that business had been very good, and this year would break all records.

S. T. Hoover, one of the oldest lumber and builders' supply dealers in the state, located at Armstrong's Mills, Belmont county, was in attendance, as usual. He has been a regular visitor for many years. Mr. Hoover has been a resident of Belmont county fifty-six years. He said this gathering was the greatest he had seen.

Concrete vs. Terra Cotta Tile.

NEW YORK, Jan. 18.—In a recent lecture before the real estate class of the Y. M. C. A., G. Richard Davis, of the firm of A. L. Mordecai & Son, took up the subject of hollow terra cotta tile vs. concrete in building construction. His lecture was induced by a provision in the proposed building code excluding the use of cinder concrete. Mr. Davis said, in part:

The dead weight of an arch built of terra cotta tile laid in cement mortar is considerably greater than the dead weight of an arch built of cinder concrete mixed with cement mortar. This is due to the greater weight of the terra cotta per cubic foot and also to the fact that a four-inch concrete slab will sustain as much weight as an eight-inch terra cotta arch. To carry the increased dead weight that the use of a terra cotta arch creates if substituted for a cinder concrete arch, the steel work of a building must be made heavier. In other words, a building will cost more when terra cotta is used for the arches than when cinder concrete is used, due to the increase in weight of the steel.

If the terra cotta tile arch were freed from competition with the cinder concrete arch, which at the present time it cannot commercially compete with, the manufacturers of terra cotta tile would be enabled to increase their price instead of reducing it, as they are now obliged to do to meet competition.

It is to be hoped that a clear understanding of the situation by those who will decide this question in our city government will enable us to obtain a building code which will admit of fair competition for all classes of fireproof arches which give equal results, no matter what the cost of one may be as against the other.

HOOSIER LUMBERMEN.

Lively Times at the Annual Convention of the Retail Dealers Association of Indiana.

INDIANAPOLIS, IND., Jan. 18.—Five hundred dealers attended the 26th annual convention of the Retail Lumber Dealers Association of Indiana, which was held at the Claypool hotel in this city, January 12-13-14. E. P. Deming, president of the association, delivered the annual address, after which the reports of the secretary and treasurer were read.

President Deming, in his annual address, said that the association had prospered during the last year. He spoke of his attendance at the American Lumber Trades Congress at Chicago last June, and urged that the convention ratify the code of ethics adopted there, and urged that the Indiana association be always represented at the lumber trades congress. He also paid a high compliment to H. C. Searce, of Morsville, secretary of the association, who he said had aided him greatly during the year.

Much routine business was transacted and papers read, among which was one on "Short and Long Lengths," by Joseph A. Paddock, of Illinois. At the conclusion of a long discussion of this paper the convention voted to instruct the resolutions committee to bring in a report showing the organization to be opposed to the continued method of cutting lumber purchased by retailers so that the wholesaler may have the benefit of that portion which is culled.

Cheer and good fellowship reigned on the night of the 12th when some 400 of the members of the association assembled in the American dining room at the Claypool hotel for the annual banquet of the organization. The feast was enlivened by the members of the Concatenated Order of Hoo-Hoo. Early in the evening the Hoo-Hoo initiated twenty new members into the mysteries of the order. The lobby of the hotel and the tables where the banquet was served were conspicuous with replicas of the black cat, the insignia of the organization.

Fine Exhibits and Souvenirs.

The entire eighth floor was taken up by the association, which held its sessions in the large convention hall, and the exhibitions of lumber and building material, representatives of the many firms establishing headquarters there, and the various rooms being gaily decorated with banners and canvas streamers. Conspicuously attractive were the quarters of the Lehigh Portland Cement Co., of which F. E. Paulson is the manager at Indianapolis. These headquarters were arranged very attractively by E. E. Fillian, of its sales department, who came here to entertain the visitors and keep things lively, and every one realized that he was successful in his efforts and that the company was one of the liveliest wires in the cement trade. Every visitor was decorated with a handsome stick pin with a "Lehigh Girl" on it. In the forenoon of the opening day the entire office force, including the young ladies, paid a visit to all of the exhibitors, which compliment was highly appreciated.

The headquarters of the Universal Portland Cement Co. were most advantageously located, being next to the convention hall. Exceeding good taste was displayed in their decoration, and all day during the meeting a line of visitors received the souvenir given by the company; a pocket paper cutter of celluloid, dedicated to the lumber dealers. T. S. Pabst, of the sales department, was in charge of this exhibit.

Edward W. Barrows, of the sales department of the Kelley Island Lime and Transport Co., of Cleveland, Ohio, presided over the exhibits made by this company. A unique and useful souvenir in the shape of a watch fob made of gunmetal was presented by him to each visitor with the compliments of the firm. He greeted many friends in this territory, who gave him many compliments on the fine quality of lime he is handling. He said that prospects were very bright and that deliveries for the next two months would be very heavy.

Cigars Caught the Men.

A heavy stream of visitors kept S. P. Selby, of the sales department, and George Harcourt, who assisted him, busy at the headquarters of the Wabash Portland Cement Co. Everyone enjoyed the fine Havana cigars which were the souvenir distributed here. Mr. Selby recently changed his headquarters from Indianapolis to Bourbon, Ind., on account of being interested in the Bourbon Lumber & Coal Co. at that place. He told all visitors to look for the "Wabash" souvenir at the coming cement show.

The headquarters of the Alma Portland Cement Co., over which H. H. Peirce presided, was a lively spot on this floor. Mr. Peirce is the selling agent for this company outside of Marion county, in the state of Indiana. He is located in Indianapolis, and for the past three years has made hosts of friends in

the state, who took special pains to call on him. He also represents the National Lime & Stone Co., of Carey, Ohio, whose trade in hydrated lime is fast increasing. Mr. Peirce was the originator of hydrate 18 years ago, which then was called Peirce's new process lime.

The headquarters of the Michigan Plaster Co., of Grand Rapids, were in charge of J. T. Bailey, its sales agent. He was kept busy answering inquiries and keeping his many friends in northern Indiana and Michigan posted on conditions and prices in the trade. His company has had a very good year, and believes that great prospects are in store for this year.

M. E. McCormick, sales agent for central and southern Indiana for the American Gypsum Co., had charge of the headquarters established at the Claypool during the meeting. The most attractive feature to visitors here in connection with souvenirs was a pretty keyring of German white metal. Mr. McCormick has been in this territory for three years, and it seemed to him all his friends came to tell him that they would need carloads of plaster this spring, and this naturally made him feel good.

A central point on this floor of many exhibits was the headquarters of the Acme Cement Plaster Co. for men dealing in plaster. R. C. Haynes, the Indiana representative of the company, was in charge. Every dealer in the state knows him, and he had many friendly calls in which incidents of the past and the business outlook in the future were discussed. Mr. Haynes said that he was well satisfied with last year's business, and, from what his friends who had called on him had told him, he was convinced this year would be a "hummer."

Brighams Lose Their Neckties.

The popular and attractive headquarters of the Atlas Portland Cement Co. was in charge of C. R. and C. H. Brigham, its Indiana representatives, and Frederick J. Hunter, the Ohio representative, a young man who entered the service of this company a month ago. He is bright, active and energetic, and gives strong evidence of making his mark in the cement field. Visitors were entertained royally by these three genial spirits. A souvenir—a very pretty push point pencil with lead and ink erasers—was distributed. Another souvenir held by few met even a quicker fate. When the Lehigh young ladies paid a visit to all headquarters on this floor, somebody told them the "Atlas" gave away neckties, and when they saw nine beautiful neckties, the envied property of the Brighams, hung up in plain view, they naturally carried them away, with the impression that the "Atlas" knew how to do things "just splendid."

Takes Over Mobile Cement Co.

NEW ORLEANS, LA., Jan. 18.—New Orleans will be the headquarters of the new Mobile Portland Cement & Coal Co., which Minnesota capitalists have agreed to finance for \$3,000,000.

The new concern will take over the property of the Mobile Portland Cement & Coal Co., which consists of 10,000 acres of coal lands on the Warrior river, near Tuscaloosa, Ala., and the large cement properties at St. Stephens, on the Tombigbee river. Six steamers and a number of tugs will operate between New Orleans and Mobile, and it is estimated that the corporation when going will employ more than 1,000 men. The project is to bring the product of the mines and the rock quarries to Mobile by river steamers and thence by means of the Mississippi sound and the Lake Borgne canal to this city. It is said that in this way the cost of coal and cement can be materially reduced. The company will operate six steam tugs and steamboats, and, it is said, will give employment to about 1,000 men in the mines and cement works. Terminals will be constructed both at Mobile and this city.

Arrowhead Lime Co. Makes Purchase.

SAN BERNARDINO, CAL., Jan. 15.—The Arrowhead Lime Co., with principal headquarters in Los Angeles, has filed articles of incorporation here and immediately purchased the Druce mine, a limestone proposition near Scott's siding, on the Salt Lake road, for \$10,000. The company will manufacture cement, lime and plaster. The directors are R. N. Loucks and P. S. Postell of Pomona, and W. O. Rogers of Los Angeles.

Death of Old-Time Lime Maker.

BELLEVUE, IA., Jan. 17.—O. W. Joiner, proprietor of the Excelsior Lime Works near Maquoketa, died December 23, after a brief illness of pneumonia, aged 70 years. He was one of the prominent men of that part of the county.

NORTHWEST CONVENTION

Lumber Dealers Hold Their Annual Meeting and 1910 Campaign for Building Materials Is Mapped Out.

January 18, 19 and 20 members of the Northwestern Lumbermen's Association gathered in Minneapolis for their twentieth anniversary convention. The past year has been one of great benefit to the dealers of the Northwest from an association standpoint, and one of the things brought out prominently at this convention was the great value of co-operation in the buying and selling of lumber and building materials.

The meeting was well attended; in fact this convention is always well attended, which speaks well for the work the organization is doing, and demonstrates beyond doubt that its members appreciate what is being done for them.

A good program had been prepared. President Finkbine made an interesting and instructive address, and Secretary Hollis' report was full of good suggestions. Ben R. Vardaman, Des Moines, Ia., delivered an address on the "Art of Making a Sale," and the subject of odd-lengths was taken up and discussed in all of its phases, led by Victor H. Beckman, secretary of the Pacific Coast Lumber Manufacturers' Association. A resolution was adopted on this subject protesting against the manufacturer shipping odd lengths unless the purchaser specifically calls for it, the idea being that the retail dealer should not be forced to take odd lengths without his consent.

The following officers were elected for the ensuing year: President—C. A. Finkbine, Des Moines, Ia.; Vice-President—E. G. Flinn, Minneapolis, Minn.; Secretary—W. G. Hollis, Minneapolis, Minn.

NOTES OF THE MEETING.

The usual quota of cement, lime, plaster and other building material concerns opened up headquarters in the West hotel where they entertained their friends with cigars, souvenirs, etc.

The Northwestern States Portland Cement Co., Mason City, Ia., was fully represented. Its delegation, headed by H. B. Hashbrook, was as follows: P. A. Danielson, M. K. Sawyer, D. B. Holly and J. F. Lynch. This company had a large suite of rooms on the balcony of the West hotel and was kept busy during the whole time of the convention entertaining friends and customers.

The Atlas Portland Cement Co., New York, was represented by F. C. Bailey, Milwaukee; J. W. Lewis, Omaha, Neb.; Walter Smith, Ft. Dodge, Ia., and F. E. Potter, New York City. The Atlas Co. also had a suite of rooms in the West hotel.

Chicago Portland Cement Co., Chicago, Ill., was represented by B. Koepke and M. R. Lilly. Lilly and Koepke were a good team and kept things moving in the interests of Chicago "AA."

The Universal Portland Cement Co., of Chicago and Pittsburg, held open house in the same suite of rooms as last year. All the boys in the Minneapolis office were on the job during the three days' convention: J. C. Van Doorn, W. C. Berry, E. S. Macgowan, P. A. Kypke, D. H. McFarland and F. L. Hoppin.

Northwestern Lime Co., St. Paul, Minn., was represented by John Wharry, W. L. Grathwohl and R. D. Turpen.

The Marblehead Lime Co., of Kansas City and Chicago, was represented by C. E. Marvin and D. H. Howe, both of Chicago. Mr. Marvin and Mr. Howe gave nobody a chance to overlook the good qualities of their company's high calcium hydrate.

Iowa Hard Plaster Co., of Ft. Dodge, Ia., was ably represented by Roy W. Merrill and J. C. Phelan. Merrill and Phelan, like the Iowa Hard Plaster, are "hard to beat."

Plymouth Gypsum Co. and the Plymouth Clay Products Co., both of Ft. Dodge, Ia., were represented by D. E. Roberts, Ft. Dodge, Ia.; O. J. Osterlund, Red Wing, Minn.; F. M. Coughlin, Des Moines, Ia.; G. M. Eilenburger, Ft. Dodge, Ia., and O. F. Armstrong, Minneapolis.

Lehigh Sewer Pipe and Tile Co., Ft. Dodge, Ia., was represented by J. K. Chrisman, Omaha, Neb., and Geo. W. Avery, Sioux City.

Fowler & Pay, Mankato, Minn., large manufacturers of lime, cement and plaster, were represented by E. H. Bassett, Minneapolis; C. H. Wilson, Minneapolis, and B. F. Pay, Mankato, Minn. Mr. Pay showed his Albion White Lime, mixing it right in his room. It is a very white and smooth lime and is called "Bricklayers Cement."

E. H. Derby, of Mankato, Minn., representing the fence department of the American Steel and Wire Co., has been a regular attendant at these conventions for years and was on hand this year, passing out Romeo

and Juliet cigars with the American Steel and Wire bands on them.

Cyclone Fence Co., Waukegan, Ill., showed a section of its fence and were busy most of the three days demonstrating what a difficult matter it is to beat a "Cyclone." The company was represented by F. C. Bates, Fred Hansen and J. P. Arthur. They handed out to their friends a very pretty watch fob bearing their advertisement and a neat compass.

Plymouth Clay Products Co., Ft. Dodge, Ia., distributed among its friends a very pretty medallion watch fob.

I. W. Lewis, Omaha, Neb., was the first Atlas Portland Cement Co. man in that state. He also travels some in Wyoming. He says there are not more than a half dozen towns in that whole state, but that the irrigation movement is doing great things for the people in that country. "The cement block business is growing," he says, "and we are trying to get the farmers to build cement silos."

M. R. Lilly, of the Chicago Portland Cement Co., handed a representative of ROCK PRODUCTS one of this company's cigars bearing its own brand. Lilly said: "If one won't kill, another one will." However, we think Mr. Lilly coined that phrase more for its poetry (?) than the truth of the statement. Mr. Koepke and Mr. Lilly both said that the outlook for the cement business in 1910 was good and they think the season will open up strong.

Tuesday night, January 18, a Hoo Hoo concatenation was under the direction of J. C. Melville, Minneapolis, vicegerent snark for Minnesota. There were seventeen kittens, and one of these was E. S. Macgowan, of the Minneapolis office of the Universal Portland Cement Co. O. U. Miracle and Ralph Miracle, of the Miracle Pressed Stone Co., Minneapolis, are both prominent Hoo Hoo and took part in this concatenation, Ralph Miracle acting on the working team in the position of Junior Hoo Hoo.

M. N. Espey, Minneapolis, Minn., representing the Acme Cement Plaster Co., visited with a number of his friends during the meeting.

W. M. Brooks, of the Brooks Lumber Co., Waverly, Ia., handles cement, lime and plaster as well as coal. Mr. Brooks said that business was a little quiet now except in the coal line. He says from present indications there will be a good season, but that it is hard for anybody to tell this far ahead. Mr. Brooks has just bought a yard at Waverly, having moved from Readlyn, Ia. The yard he just bought was known as the North Iowa lumber yard.

H. B. Groff, secretary and treasurer of the Universal Supply Co., Minneapolis, Minn., entertained many friends and customers at the convention. This company handles Heppes roofing, Utica cement and maple flooring. Mr. Groff said: "Business with us is fair. Of course it is a little slow this time of the year; we expect this. Things will open up all right as the season advances."

T. W. Lucas, of the Hayes-Lucas Lumber Co., Winona, Minn., was looking after his firm's interests. This company is very progressive, and, although it has a number of yards, it is continually buying new ones and extending its business.

A. W. Mink, a contractor of Minneapolis, who makes a specialty of building grain elevators, called on the cement and plaster men who held open house in the West hotel.

Louis Moore, of Moore & Moore, Waterloo, Ia., was on hand looking for new ideas. Mr. Moore is an enterprising young man and is pushing things hard in his territory. He sells large quantities each year of the Marblehead limes.

Chas. Hass, general manager of the Hass Lumber Co., Holstein, Ia., said he enjoyed every session of the convention. This company handles all lines of building material.

S. E. Taylor, of the C. L. Colman Lumber Company, La Crosse, Wis., was present for the three days of the convention. This company recently built a new office that is as fine as a bank.

D. E. Baker, of the Baker-Warfield Lumber Co., Traer, Ia., renewed old acquaintances. Mr. Baker said business is good in their territory. The Baker-Warfield Lumber Co. has three yards in Iowa.

E. W. Runge, of the Frederick Lumber and Coal Co., Frederick, S. D., was on hand and attended every session of the convention. Mr. Runge said they had had some stiff weather this winter and everything, consequently, is quiet, with the exception of the coal department, which kept them hustling right along. He says he looks for a good year in all building materials.

J. C. Schadel, of Minneapolis, who has charge of the stock department for the line of yards owned by the J. H. Queal Co., Minneapolis, called at all of the display rooms in the West hotel.

J. H. Queal & Co., Minneapolis, had a large number of their yard managers and auditors in town for the convention.

C. W. Derr, Mitchell, S. D., who is certainly a

prince, was greeting his many friends with his pleasant smile.

All of the Iowa boys were in attendance and showed a great interest in the convention. The Iowa delegation is always a live one.

Frank Hall, Conde, S. D., handed out his Sunny Jim smile freely to all his friends.

L. V. Thayer, of the Peerless Brick Machine Co., Minneapolis, Minn., although busy getting his display ready for the Chicago cement show next month, had time to visit with the lumbermen. Mr. Thayer is always popular at this convention and always has a large circle of admirers around him.

J. O. Reilly, Osceola, Wis., has been in the lumber business for many years and has been a member of the Northwestern Association since it started. He is very popular among the lumbermen and supply men. He owns a line of yards in Wisconsin and also has one in Minnesota.

R. J. Roth, of Webster, S. D., has just been made general manager of the Williams Lumber Co., Webster. This company has a line of yards in South Dakota. Mr. Roth is very popular among the trade, and this new position is a well merited promotion.

E. C. Barton, auditor of J. H. Queal & Co., Minneapolis, acted as guide for a squadron of yard managers and auditors of the Queal Lumber Co., who attended the convention.

That king of old timers, L. H. Clow, Pierre, S. D., reached Minneapolis Wednesday morning and spent the day with his many friends. Mr. Clow was on his way home from a winter vacation trip, and reports better prospects than formerly in his portion of the Sunshine state.

J. P. Anderson, of Mitchell, S. D., was in attendance with his right hand man, O. S. Sweet. Mr. Anderson looks well and happy as a result of his recent vacation, spent on the coast of Maine and Massachusetts, where he renewed the acquaintance of the many friends of his youth.

One of Bicknell's Jokes.

C. H. Bicknell, of Landers, Morris & Christiansen, Minneapolis, sees the funny side of life and gets more real pleasure out of the conventions than anybody else. Everybody knows C. H., and if you know him you're his friend. "Bick," as the boys call him who know him best, was making the rounds of the display rooms. He went into the suite occupied by the Northwestern States Portland Cement Co. and was given royal reception including a drink of the "rarest" for old times' sake—a gentleman's extreme mark of hospitality.

The Universal Portland Cement Co.'s suite was the next stop, and as C. H. entered he scratched his head to think out a plan for a little fun here. An idea struck him. He said:

"Boys, haven't you got 'anything'?"

When they replied that they had nothing of that kind he said: "Um— That's funny. They are passing it out all along the line."

Of course that wasn't exactly the truth, but that is where the joke came in. The Universal boys, thinking that perhaps something had slipped by them told C. H. to come back in an hour and they would be ready to receive him.

Last scene. Last act. Place, Universal suite. Time, half hour later. Everybody around the large punch bowl.

The critics are agreed that this practical joke was the best "Bick" ever pulled off.

Officers of Standard Lime & Stone Co.

FOND DU LAC, WIS., Jan. 19.—At the annual meeting of the Standard Lime & Stone Co. the stockholders elected directors as follows: E. H. Lyons, W. A. Titus, Alfred Ferk of Chicago, W. H. Hamilton and Charles Pesch of Valdars. The directors organized by electing the following officers: President, E. H. Lyons; vice-president, W. I. Hamilton; secretary and treasurer, W. A. Titus.

Universal Supply Company.

MINNEAPOLIS, MINN., Jan. 21.—The Universal Supply Co. has been organized here with E. D. Walker as president and E. B. Groff as secretary and treasurer. Both are well known to the trade and especially to the dealers and users of supplies in the great Northwest. They will represent Ward Brothers, of Big Rapids, Mich., manufacturers of maple flooring, the Heppes Roofing Co., the Utica Hydraulic Cement Co. and other well-known manufacturers of builders' supplies.

Knickerbocker Co. Plans New Plant.

HUDSON, N. Y., Jan. 18.—Draftsmen are busy in the office of the Knickerbocker Cement Co. preparing plans for the big plant the company proposes to erect in the spring near Fountain Head.

FROM OUR OWN CORRESPONDENTS

BUFFALO AND VICINITY.

BUFFALO, N. Y., Jan. 15.—Cement and crushed-stone men of Buffalo are in what might be properly characterized a quiescent state, owing to the dull season of the year, yet they are hopefully anticipating a resumption of former activities with the arrival of spring. As a matter of fact, what big jobs the various institutions are seeking is being kept a matter of silence for fear of a surfeit of competition. It is reported that several of the local concerns have some splendid contracts in prospect, but the managers of the companies will not give the slightest inkling of their probabilities, for fear competitors will beat them to it.

This year, with the absence of much road-building, means the crushed stone man will turn his attention to the general building industry and construction work with greater interest than heretofore, particularly to municipal constructive work. Much stone will be used this coming summer by the Erie railroad in the construction of grade crossing viaducts. This will create a big demand for crushed stone and cement. It is a matter of deep disappointment to the crushed stone and cement men that the New York Central is not going to do much viaduct work this year.

Manager Schumacher, of the Buffalo Cement Co., holds an optimistic view for the approaching season of building activities. He says: "We are laying off at this time, owing to the unfavorable season of the year for building. There is practically nothing to do until spring comes. We expect some road and concrete work, but the road work will be comparatively small this year. Where we shall lose on the roads, however, we shall gain in concrete work of an entirely different character. This road situation applies to the local vicinity. We can't ship great quantities of crushed stone for roads many miles away, owing to the heavy freight rates, which would not permit it. Otherwise the outlook is good. We have several big jobs in view, but I am not in a position to state what they are."

W. E. Plummer, Jr., secretary of the Buffalo Sandstone Brick Co., reported: "Things are a trifle quiet at the present. The outlook, however, is extremely bright for an active season when the change in weather comes. I look for marked activity in the general building line of every character."

M. A. Reeb & Co., who handle builders' supplies, report that the market is a little quiet at present, but gives every indication of picking up with spring. The outlook for a most prosperous season for this firm is exceedingly bright.

The South Shore Construction Co., of Erie, Pa., has been awarded the contract to build about 7,000 feet of macadam road in McKean county, Pa. The contract price is \$14,833.

Concrete, brick and structural iron and steel will be used in the enlargement of the blacksmith shop of the Brooks plant at Dunkirk, N. Y.

George F. Newton, of Boston, has been hired to act as advisory architect in drawing up the program for the competition among local architects for plans for the new Hutchinson school building here.

Judge Hazel, of Buffalo, has granted an adjournment until January 24 in the bankruptcy proceedings of the Medina Quarry Co. The attorneys representing the creditors petitioned for the adjournment. The firm's liabilities amount to almost \$1,000,000.

In Rochester, N. Y., last year, public improvements costing about \$750,000 were made. More than ten miles of new pavement were laid the past season. This includes asphalt, brick, bitulithic asphalt and all other kinds. The total length of the sewers laid during the season was eight miles.

Bids on four additional barge canal contracts were opened recently at Albany. The lowest bids aggregated \$4,343,474. The lowest bidders were the Penn Bridge Co., of Beaver Falls, Pa.; Scott Bros., of Baldwinsville, N. Y., and Shanley-Morrissey, Inc., of New York.

The Hornell & Bath Interurban Railway Co. will build an electric road from Hornell, N. Y., to Bath, N. Y., a distance of twenty-four miles. Much sand and other building material will be used on the contract.

Architects Esenwein and Johnson, of Buffalo, are preparing plans for the entrance to Carnival Court, a summer amusement resort to be built in this city. Much concrete will be used in booths, walks, foundations and for other purposes in the contract.

Representative James S. Simmons, of Niagara Falls, announces that there is a fair assurance that the Niagara river channel between Tonawanda and Niagara Falls will be deepened to twelve feet to permit lake boats to dock within the city limits. He said further that it is not too much to expect that within a year or two the government will appropriate enough money to deepen the channel to eighteen feet. The cost of a twelve-foot channel would be well within \$100,000. The cost of an eighteen-foot channel with a turning basin would be about \$8,000,000.

Representative Alexander, of Buffalo, reports that the United States plans to build a fourth lock at the American Soo. It is stated that the new lock will be 1,300 feet long and at least 85 feet wide and will cost about \$6,500,000. It is possible that the Canadian government also may construct another lock at Sault Ste. Marie. Much cement would be used on these contracts.

Contracts calling for an expenditure of \$1,000,000 for eliminating grade crossings on the Erie's belt line about the city of Buffalo were approved at a recent meeting of the grade crossing commission of this city and forwarded to New York for approval of the railroad executives. The city pays 35 per cent and the railroad 65 per cent of the cost.

At the last convention of the State of Pennsylvania Builders' Exchanges, held at Sharon, Pa., W. H. Dennis, of Bradford, was reelected president. E. N. Unruh was elected chairman of the committee on legislation. Mr. Unruh is also of Bradford.

Edward Isenraut, of Colden, N. Y., who died recently, directed in his will that part of his money be expended for cement walks in that village, the name of the donor to be put into the end of each walk so built "in appropriate brass letters."

Representative Knapp, of New York, has introduced a bill calling for an appropriation of \$1,250,000, with which to prepare for the building of a ship canal connecting La Salle, N. Y., and Lewiston, N. Y.

According to a report from Binghamton, N. Y., A. E. Stephens & Co., of that city, have been awarded a municipal building contract in Springfield, Mass., the contract price of which is nearly \$900,000.

According to Governor Hughes at Albany, N. Y., important progress has been made in the construction and improvement of highways in New York state. Of the 520 miles of roads under contract when the new state highway commission entered upon its work at the beginning of last year, 201 miles have been completed and accepted, and of the remaining 319 miles, 75 per cent of the work has been done. During the past year there have been expended for the improvement of county roads \$2,847,261. Special attention has been paid to repair and maintenance and \$941,000 was expended during the past year upon roads previously completed.

The International Waterways Commission has finished its report on the advisability of constructing a dam across Lake Erie from the Bird Island pier in Buffalo to Port Erie, Ont., to maintain the level of the lake. It is said that the commission does not favor the plan. The commission has also considered in this city the application of the St. Lawrence Power Co., Ltd., and the Long Sault Developing Co. to construct power works and a dam in the Long Sault Rapids of the St. Lawrence River.

The German Rock Asphalt & Cement Co., the Barber Asphalt Co. and the L. H. Gipp Contracting Co. have secured some recent paving contracts in Buffalo.

Word has been received from Washington that the War Department contemplates the expenditure of \$10,000 at Fort Niagara during this year. A great deal of new construction work has been done at the post during the past two years, and the proposed improvements are in the nature of finishing touches. A rip-rap in front of the old sea wall will cost about \$4,950, while new concrete walks and grading will cost about \$5,500.

PHILADELPHIA.

PHILADELPHIA, Pa., Jan. 18.—H. M. Fetter, second vice-president of the William G. Hartman Cement Co., states that while there is not very much demand in this immediate locality, their plant in the South is kept very busy. The outlook is very good and a number of orders are beginning to come in, on account of a predicted advance in price.

Paul J. Bahn has been granted permits for the building of twelve dwellings at Carpenter and Greene streets; estimated cost, \$72,000.

E. R. Hutton has been granted a permit for the erection of twenty-five 3-story dwellings on the south side of Willow street, between Fifty-eighth and Fifty-ninth. Estimated cost, \$64,000.

Thomas Killough is about to build thirty-two 3-story houses on St. Bernard street, between Locust and Spruce. Estimated cost, \$155,000. The exterior will be of brick, with limestone trimmings.

Forty-two building lots have recently been pur-

chased at Logan station for the purpose of erecting 3-story residences at an estimated cost of \$200,000.

George T. Pearson is revising plans for the parish house of St. Luke's P. E. church, Germantown. The building will be of stone, two stories and basement, 54'x127'. Estimated cost, \$50,000.

Price & McLenahan, of this city, have awarded a contract for a 5-story hotel to be erected at Daytona, Florida. Estimated cost, \$150,000.

D. W. Anderson is preparing plans for the Lakewood Terrace Hotel & Sanitarium Co., for a new hotel at Lakewood, N. J. Estimated cost, \$60,000.

CLEVELAND AND VICINITY.

CLEVELAND, OHIO, Jan. 18.—Building conditions are rounding into fine shape in this territory and the spring season will see the launching of a large number of new projects. Supply, cement and brick dealers are jubilant over the outlook, the year promising to break all records even at this early stage. Already buildings valued at upward of \$10,000,000 are planned, practically all of them fireproof structures in the downtown district of the city.

Construction on the 16-story annex to the Rockefeller building will begin as soon as weather conditions permit. Work begins February 1 in wrecking the old buildings along Superior avenue. The new building will be of steel, heavily fireproofed with concrete, with a facade of chocolate colored brick and white tile side walls. It will have a frontage of 63 feet and run back about 250 feet. Knox & Elliott, who planned the original structure, will have charge of the work.

Searles, Hirsch & Gavin have been chosen as the architects for the 12-story office building which is to be erected on Euclid avenue, just east of E. Ninth street. It will have a frontage of 80 feet and will be 120 feet deep. It will be of white enamel terra cotta.

Preliminary contracts have been let during the past month for an 8-story reinforced concrete building for the Tenbusch Realty Co. on E. Fourth street, near Prospect avenue. It will have a frontage of 66 feet and will be 120 feet deep. It will be the second all-concrete 8-story building in Cleveland. The building code was altered last summer to permit of 8-story instead of 6-story reinforced structures. The building will cost upward of \$150,000. The concrete work is to be done by the F. P. Construction Co. Work will begin April 1, tearing down the buildings to make way for the new structure.

Another new theater, to cost \$80,000, is to be erected on E. Ninth street, corner of Chestnut avenue. It has been leased for a period of eighteen years. Plans for the structure, which will seat 1,200 persons, have been prepared by Architect George A. Griebel. Contracts will be let some time in February. The building will be of steel, concrete, terra cotta and brick. A 3-story building which occupies the site is being wrecked so that excavating can begin.

The Wigmore Realty Co. is preparing to erect a 5-story building on Euclid avenue, opposite the Hotel Euclid. It will be a mercantile structure 100 feet wide and of a similar depth. Plans are being prepared for a fireproof structure. Frank and Gardner Abbott have had plans prepared by the Vorce Engineering Co. for a 5-story building on Euclid avenue, east of E. Fifty-fifth street. It will be 100 feet wide and 200 feet deep. It will be of steel, concrete and brick. It is to serve as a postal substation.

The Peerless Motor Car Co. has announced plans for three new factory buildings of a fireproof type, to be erected at once. The general contract has been let to D. C. Giese & Walker. The first building will be three stories, 50 by 100 feet in size.

Charles F. Laughlin, who has purchased the Towers apartment house on Euclid avenue, will utilize property in the rear for the erection of a 6-story factory which has already been leased to a large textile concern. It will probably be a fireproof structure and will cost in the neighborhood of \$100,000.

The United States government will spend \$40,000 or \$50,000 this spring for a new concrete warehouse on the new government pier at the foot of E. Ninth street. The pier was finished late last fall. The building, which will be a 2-story structure, will be used as a storehouse for government supplies. Plans are being prepared in the office of Col. John Millis, United States engineer here.

Some big improvements are contemplated by the Lake Shore railroad in this territory, according to an announcement just made. About \$15,000,000 is to be spent for new buildings and the construction of extra tracks. A new passenger station at E. 105th street will cost \$95,000; a new concrete bridge over Neff road will cost \$75,000; improvements at the Collinwood shops, \$105,989; a new freight station at Watson street, Cleveland, \$96,000. Another two-arch span of concrete will be built over the Grand river at Painesville at a cost of \$52,000. The rest of the

money will be spent for smaller bridges and double track operations in the vicinity of Cleveland.

The Euclid Genesee Realty Co., which owns the St. Regis, the finest apartment house in Cleveland, has mortgaged it for \$120,000 for an addition of several stories which will be gone on with this spring as soon as weather will permit. An addition of six or eight stories in height will be made to the Gillsy hotel during the coming year also.

The director of schools has asked for an appropriation of at least \$500,000 for new school buildings for the coming season. These will include a new Technical high school on the West Side and a number of grammar schools, which average about \$100,000 apiece.

Work is to begin within the next month or two on the new \$400,000 clubhouse for the Cleveland Athletic Club on Chestnut avenue. It will be a 7-story building of steel, concrete and terra cotta. An unusual feature will be that the gymnasium will be on the top floor, with the baths on the floor below. The building will be the most elaborate clubhouse in the city. The plans were prepared by J. Milton Dyer.

The Euclid Garden theater has been sold and a business block is planned for the front portion of the property. It will be three or four stories in height and fireproof. The new owner is Robert E. McKieson. Work will probably start first thing this spring.

Concrete work costing many hundreds of thousands of dollars will result from the passage by the East Cleveland council of the Belt Line ordinance. This permits the four-track railroad to run through the village on an 18-foot embankment. Each street will be crossed by means of an ornamental concrete bridge. There are fifteen or twenty of these bridges to be built in addition to a number of other improvements. Several are under way and more will be started as soon as the weather becomes more seasonable. The various bridges will cost about \$1,000,000, according to present estimates. Most of these will be built by the railroad itself under the sub-contract system.

Architect Daniel A. Reamer has completed designs for a handsome residence for George C. Kridler on Shaker Heights. It will be in the mission style of architecture and fireproof, with a cement exterior and a roof of Spanish tile. A distinctive feature is that the living rooms are on the second floor, the lower floor being given over largely to service.

The annual meeting of the American Gypsum Co. is slated to be held January 26 at the company's headquarters at Port Clinton, O. The concern has had an unusually successful year.

J. J. Rowe, of Cleveland, filed papers at Columbus during the past month for the incorporation of the Lake Erie Builders' Supply Co. The initial capitalization is \$100,000 and the incorporators are W. C. Runyon, R. B. Ellis, J. J. Rowe, W. A. Fay and John Scheuer.

Samuel W. Emerson, who for a number of years was a deputy building inspector for the city and in charge of all concrete work, has resigned to go into business for himself. He has formed a partnership known as the Courtney & Emerson Engineering Co., with offices in the American Trust building. The firm will give especial attention to reinforced concrete construction work, in which Mr. Emerson has had a wide experience. The firm became a member of the Cleveland Builders' Exchange during the past month.

The county of Cuyahoga, of which Cleveland is the county seat, plans to lay a number of miles of pavement through its rural districts during the coming season. It will total nearly twenty miles at an average cost of about \$20,000 a mile. The work will be done under the direction of Frank R. Lander, the county engineer. The pavements are to be of vitrified brick laid on a concrete base with concrete curbs and gutters.

William R. Dougherty has been awarded the contract for the new Lutheran church, to be erected at Twenty-eighth and Chalmers avenue. Estimated cost, \$25,000. Robeson Lea Perot, architect.

Revised plans are being prepared for the construction of an additional marine barracks at the Philadelphia navy yard. It will be a 3-story-and-basement fireproof structure of brick and concrete. Rankin, Kellogg & Crane, architects. Estimated cost, \$150,000.

Otto C. Wolf has completed plans for a storage, wash house, racking room and cooper shop at Park avenue and Clymer street for the Consumers' Brewing Co. The structure to be of brick, two stories and basement, 40'x100', and to cost \$20,000.

Metzger & Wells have a contract for a Colonial residence at Bryn Mawr at a cost of \$40,000. The same firm is also figuring on an addition to the state house at Dover, Del., and for fourteen houses at Bala, Pa., at a cost of \$100,000.

Stanley B. Smullen has been granted permits for eighteen 3-story residences to be erected on Cresheim road at a cost of \$153,000. Architects, Sauer & Hahn.

TOLEDO AND NORTHWESTERN OHIO.

TOLEDO, O., Jan. 18.—The new year opens very auspiciously for construction operations generally in Toledo and northwestern Ohio. While 1909 eased off with comparatively little work, the total amount of building operations in Toledo for the year shows an increase of about 33 per cent over the year previous, which is very satisfactory to all concerned and which promises to be further advanced during 1910.

The largest project which promises activity is the Cherry street bridge, which is assured of early action according to the statement of J. R. Cowell, new director of public service, who took office January 1. Members Oscar Sabin and Joseph Jackson, of the old board, appeared to be so desirous of awarding the contract before their term expired that City Solicitor Northrup, whose term also expired January 1, obtained an injunction restraining them from awarding the contract to the Pneumatic Caisson Co. on the grounds that the company was not low bidder, and that there was some question as to the authority of the old board to award the contract legally. As this structure will be almost exclusively of concrete and probably cost a million dollars when completed, the awarding of the contract has attracted not a little interest from manufacturers of cement and crushed stone. The new director of public service will employ an engineer and canvass the present bids and future action will depend on his report.

William G. Clark, civil engineer and supervising engineer of the new Toledo filtration plant, is preparing preliminary estimates for a waterworks and filtration plant for the city of Flint, Mich.

Engineers Riggs and Sherman have been retained by a number of municipalities in Ohio and Michigan to prepare plans and estimates for paving.

George McGormeleay, of Wynkoop & McGormeleay, bridge contractors, is just recovering from a nervous breakdown, brought on by overwork. He delivered an address before the Kenilworth Club of this city late last month on "A Business Man's View of Local Option." He said: "We are figuring on a great deal of work and believe with the volume of business which promises to develop during the year, that competing contractors will naturally advance their bids to a point where there is a reasonable margin for the successful bidder. This will not only result in more satisfactory conditions but in better work all around."

Frank I. Consaul, who for several years was city engineer and who on January 1 became interested in the Acme Builders' Supply Co., was among those who suffered through the closing of the East Side Bank. Mr. Consaul had several thousand dollars on deposit and, until the affairs of the bank are adjusted, will not know just what per cent he will receive, it having been variously estimated from 33 to 100 per cent. Mr. Consaul will look after the outside interests of the company and, as he said, "While deploring the severance of associations of many years standing, I believe that there is an excellent opening for me in this new line." F. B. Jones, founder of the company and general manager, will continue in this position, although the duties of that office will be borne jointly by Mr. Consaul. V. B. Stevenson will continue as office man. Said he: "The addition of Mr. Consaul will strengthen us materially and we expect to occupy a much larger field than hitherto."

Otto Ausbach, of the Ohio Builders' Supply Co., is hopeful for this year. He says: "I anticipate an early spring and believe that an active demand will be created just as soon as weather conditions will permit. Toledo has not yet reached the point where building operations continue at full height, but we are having a fair call for materials all the time and architects tell me that they have plenty of work that will start as soon as there is a break-up in the winter."

The Superior Supply Co., mention of which was made a month ago, has completed its organization by electing A. B. Luten president, Adam Bowersox vice-president, and William S. Brown as secretary and treasurer. The company is now engaged in forming its connections and hopes to be in position to go after business by February 1. Mr. Brown says: "The impression seems to have gotten abroad that we are entering business to start a rate war, but this is not the case. We believe that there is room in Toledo for another good, aggressive firm and we are going to try and fill that niche. If there is to be a cut in prices, the other fellow will have to start it. All we want is a share of the business and will try to get it along legitimate business lines. Some details of the company have not yet been finally worked out, but we have not started a fly-by-night proposition and expect to be found among the aggressive business concerns of Toledo as time goes by."

Samuel Hildebrand did a fine piece of plastering in his new store and flat building on Broadway, the plaster having been furnished by the American Gypsum Co.

Following its annual custom, the Toledo Builders'

Supply Co. handed out boxes of cigars at Christmas time among architects and contractors. A. R. Kuhlman, vice-president of the company, says that business is starting in good this year and anticipates a steady increase. This company has practically finished serving the A. Bentley & Sons Co. with cement on its contract to build the new filtration plant, Castalia and Omega brands having been used. About 45,000 barrels were required on the job.

Architect J. W. Matz has redecorated his offices in the Hartford building and installed considerable new furniture. Frank Matz, who has been associated with his brother, J. W. Matz, is spending the winter in St. Louis, where he is superintending the construction of a large church building.

The Toledo board of education will soon be ready to award contracts on its two new high school buildings and several other additions of a smaller nature. The board has just reorganized, the terms of two members having expired, and as practically all details have been determined, contracts will be awarded early on the two buildings, each of which will cost over a quarter of a million dollars. They are to be fireproof in construction with concrete foundations.

The Toledo Pulp Plaster Co., D. A. Hemley, general manager, has entered the builders' supply business and will hereafter handle these materials in car lots only, jobbing such lines in territory covered regularly in getting plaster business. Mr. Hemley has been absent from the city considerably winding up affairs for last year and outlining business relations for the coming one. He is well pleased with last year's volume and believes that the present one will show a handsome advance in the call for his line.

The Toledo city council has appointed a special committee to acquire, if possible for a reasonable sum, a site on which the city would erect a modern concrete market.

NASHVILLE AND THE SOUTHEAST.

NASHVILLE, TENN., Jan. 17.—R. T. Creighton, of Foster, Creighton & Gould, has been re-elected president of the Nashville Builders' Exchange. Every department of the building trade is represented on the board of directors and the exchange is doing a fine work for Nashville.

Cunniff & Stone, this city, are doing concrete work in Nashville and neighboring towns, part of it of a municipal character.

Three new members have been recently added to the Nashville Builders' Exchange: Chas. Sykes & Co., concrete men; J. E. LeSuer, brick contractor and cement, and John F. Southgate, civil engineer and cement contractor. These make a total of 117 members.

The Nashville Concrete Co. is erecting several concrete bridges in middle Tennessee.

Lightman, McDonald & Co., well-known Nashville contractors, have been awarded the contract to build a reinforced concrete warehouse for the Cheek-Neal Coffee Co.'s branch at Jacksonville, Fla. The building will be five stories in height, with reinforced concrete columns, floor and roof, and solid concrete block walls. It will be equipped with an elevator of the most modern type. The new structure, which will have a frontage both on the railroad and harbor, is located on one of the principal streets of the progressive Florida city. The entire front of the building will be painted with Bay State Cement Coating. Lightman, McDonald & Co. were awarded the contract in spirited competition with a number of other Nashville firms and bidders from Atlanta and Jacksonville. These contractors have recently finished the Cummins station extension. The entire outfit which was used in this work will be taken direct to Jacksonville. It is expected that the work in the latter city will be completed by April 1.

The board of public works of Nashville recently received bids on 7,900 square yards of concrete sidewalk construction and 2,000 linear feet of curbing. There were many bidders and the matter was taken under advisement. The lowest bid submitted was that of the Uncle Hiram Co. at 93 cents per square yard.

The Huntsville Concrete & Construction Co., of Huntsville, Ala., has recently installed the latest and most approved machinery for the making of all kinds of concrete blocks.

At Trenton, Tenn., R. R. Collins is doing considerable work in concrete building blocks. He has just completed a handsome wall around the Gibson county courthouse.

C. W. Pratt, at Martin, Tenn., has several concrete paving jobs in progress, including some paving work at Dresden, Tenn. Mr. Pratt is doing the cement floor work on a store building for J. T. Edwards and Joe Lloyd, at Dresden, Tenn.

Larde Bros., at McKenzie, Tenn., have completed a concrete porch for Dr. J. P. Cannon at that place, and have been doing some concrete paving work in the same town.

ST. LOUIS.

ST. LOUIS, Mo., Jan. 18.—The only important building material which at present is in light demand is lime, and this is wholly owing to the severe weather and the nature of the material. The demand for plaster is good and for cement an increasing inquiry is reported, both for the local market and for country points. The very general prosperity of the farmers of the middle West and of the planters at the South is the best possible guarantee of "good times" for general business and building material in particular, since large sums will be seeking investment and good city property is quite favorably regarded by prosperous farmers as a safe and fairly profitable investment, and they naturally prefer those cities in their own section which are growing rapidly. St. Louis, Kansas City, St. Joseph, Omaha and Oklahoma City are good examples of the truth of this statement. It is claimed that the growth of St. Louis in 1909 in population was the greatest during its 100 years of existence as a city, since it is now asserted its population exceeds 800,000. The building permits for 1909 totaled about \$24,000,000. There was a great increase made in its park system, an appropriation of nearly \$1,500,000 being devoted to this purpose. There were also 25 miles of new paving completed. There will be further expenditures for street building, sewers and bridges during 1910 which will aggregate a large sum of money. The totals for the commerce of St. Louis for 1909 show the immense sum of over one billion of dollars, included in which is the estimated value of local manufactured articles of \$300,000,000.

Victor E. Rhodes intends to build four high-grade 3-story brick apartments on the property he recently purchased on the corner of Maple and Belt avenues, to cost about \$100,000. The lot has a 200-foot frontage along Maple avenue by 100 feet on Belt avenue.

The Swiss style of architecture is receiving more attention now by parties intending to have new residences erected in this city. This style of dwelling has been selected by Dr. A. G. Enderle in Hampden Park. E. Priester is the architect.

Second Church of Christian Science have decided to build a new church in the block 4200 on Washington boulevard. The structure will cost about \$50,000, and will have 75 feet front by 125 feet depth. It will be finished in red brick and terra-cotta.

Orson E. and R. G. Scott are arranging to erect one of the finest apartment houses in point of equipment in St. Louis. The new structure, to be known as the Tudor Dwellings, will be erected on Delmar boulevard near Clara avenue. It will cost, including the ground, about \$300,000. The lot fronts 213 feet on Delmar, with a depth of 190 feet. The apartment has been designed by Barnett, Haynes & Barnett. There will be thirty suites. The facades will be embellished by bay windows, ornamental entrances (of which there will be five) and balustraded effects lavishly done in white Italian marble and terra-cotta. The color scheme will be ivory white and rich red. Wire-cut vitreous brick will be used on the exterior of the building, and all the features of the English Tudor style of architecture will be brought into the structure.

Tall apartments are to be a feature of West St. Louis architecture in the future, since the Kingsbury Realty Co. has led the way by applying for a permit for an 8-story apartment building to be erected on the corner of Clara avenue and Kingsbury boulevard. This is the highest apartment building ever planned for St. Louis. Most of these structures do not exceed four stories. The building will occupy a lot 92x72 feet and will cost upwards of \$75,000. The plans were drawn by Mariner & Le Baume, and the building will be erected by the W. H. Lester Construction Co.

An 8-story mercantile building is to be erected on the corner of 17th street and Washington avenue. Including the land, the investment will represent \$1,500,000. Plans are now being prepared for the structure.

Work on a new \$65,000 city hall and a \$10,000 fire department station in University City (a suburb of St. Louis) will be started within about ten days. Work also will be started on a new \$25,000 street car and wagon bridge to span the River De Perese.

The board of public improvements is asking for bids for a new 5 to 11-foot sewer in the new North Harlem Creek joint sewer district, the sewer to be two and one-fourth miles in length. The total cost is estimated to be \$246,120. Nearly a mile of it is to be 10 feet 10 inches in diameter, and more than half a mile is 9 feet; both sections are to be of concrete, and three sections nearly three-quarters of a mile are to be of brick, ranging from 4 feet 7 inches up to 7 feet 6 inches in diameter.

Plans are now being drawn for an unique building

to be erected on the corner of Seventh and Olive streets. The new building will present an entire exterior of plate glass from top to bottom, trimmed with terra-cotta. There will not be a brick on the exterior of the building. It will be similar to the Boley building at Kansas City. The lot is 25x60. The building will be four stories in height. The Weisels-Gerhart Real Estate Co. is promoting the job. Its cost is estimated at \$70,000. This type of construction is very rare, and the present structure is the first of the kind planned for this city.

The Union Sand & Material Co. report an excellent demand for cement, which is coming both from local sources and the country at large, mainly for delivery early in the spring. Prices for cement are hardening with every probability of a further advance later on. The ice gorge in St. Louis harbor caused considerable damage to the company's sand and gravel plants, but as it had before the winter set in accumulated good supplies, there will be no delay in filling orders for either material while the necessary repairs are being made.

The Continental Portland Cement Co. finds a very good demand for cement started in with the beginning of the year, and expects soon to be sold up to its production to April 1, beyond which time it does not care to make any contracts for the delivery of cement on the basis of the present market.

The stockholders of the Glencoe Lime and Cement Co., at their annual meeting elected: C. W. S. Cobb, president; F. P. Hunkins, first vice-president; George P. Johannes, second vice-president; E. S. Healey, secretary and treasurer; P. J. Bauernheim, general manager; C. W. Goetz, superintendent. These, with R. W. Gartside, G. H. Walker and H. L. Block, constitute the board of directors.

The result of the recent election of officers for the Building Industries Association, to serve for the current year, was as follows: President, O. G. Selden; first vice-president, Fred B. Adam; second vice-president, C. L. Gray; third vice-president, C. A. Sinclair; treasurer, S. M. Lederer. Board of directors—C. O. Brainerd, D. G. Scott, E. F. Lasar, John L. Mesker, James A. McKim, E. J. Hanley, John T. Bradley, F. W. Choiseil, John G. Hewitt, C. W. S. Cobb, John P. Larson, Henry G. Rolfes, William S. Simpson, Jr., R. M. Gillespie, H. G. Eastman, Jacob Mueller, Henry Hatzfeld, C. W. Schuehardt. F. G. Boyd is the secretary of the association.

CENTRAL ILLINOIS.

SPRINGFIELD, ILL., Jan. 18.—Building permits amounting to \$1,400,000 in the last nine months testify to the fact that building operations in Springfield have been steady. Among the bigger contracts not yet completed are the annex to St. John's hospital let to the Culver Construction Co. for \$50,000. The Culver Co. also has the \$350,000 contract for the New Leland hotel. Nordella Brothers are still working on the \$55,000 new Edwards school.

A new association known as the General Building Contractors' Association of Springfield, Ill., has been granted a charter by the secretary of state. The body intends to open an office for the acquirement, dissemination and preservation of valuable business information. It will maintain a reading and exchange room. The board of directors is composed of Charles A. Freeark, Charles W. Black, John York, Joseph Lorscheider, David A. DeVares, Cassius Dunlap, W. H. Hunt, Jerome B. Coffin and John Sime.

The Illinois Cement Construction Co., of Springfield, has established a permanent office in Decatur with H. R. Knotts, of this city, in charge. A permanent office also will be maintained here. The company now has seventeen blocks of paving at Decatur, aggregating \$40,000. The Terre Haute Vitrified Paving Block Co.'s product is being used.

The yard of the Terry Lumber Co., dealers in lime, cement, sand and plaster, has been absorbed by the Peter Vredenburg Co., of this city.

Quails & Austin is the name of a new concrete contracting firm formed at Hillsboro. They will build bridges and walks.

Fourth street, which has been accepted by the park board as a part of the boulevard system, will be resurfaced with asphalt.

Joseph Molohon, of Morrisonville, has been made manager of the Harvel Tile & Cement Co. at Harvel. Additional power will be installed and the run will be steady.

The board of improvements at Havana has selected C. W. Brown, of Jacksonville, as engineer to make surveys for paving. The town is ready to do its first paving, but no contracts have been let. The board consists of Mayor George Coleman, Aldermen W. J. Meyer, O. F. Pfetzing and James McHose.

LOUISVILLE AND VICINITY.

LOUISVILLE, Ky., Jan. 18.—The final reports of all the standing committees of the Builders' Exchange were submitted at the last meeting to wind up the affairs of the old year, showing that the membership now totals 144, with two applications to be acted upon. The report of Secretary J. M. Vollmer shows that although there were 2,909 permits issued in 1908, with a total expenditure of \$2,914,141, the year 1909, with 74 permits less, totaling 2,835, shows an expenditure of \$3,172,311, or \$260,000 more than during the preceding year. Mr. Vollmer goes on to show that this is due to the fact that owners are putting more money into buildings, and erecting them according to more modern ideas each year.

Louisville builders, as well as those elsewhere, are now realizing that organization and cooperation are necessary for their success as a body; hence the greatly increased membership of the Builders' Exchange during the past year. From the present outlook the concrete men will form their own association in the near future, although nothing definite has been arrived at, as yet.

During the past week Louisville lost one of her oldest contractors. J. A. Williams, age 67, a native of Jefferson county, died after a long illness. He had been in the street and sewer contract business for a number of years.

The stockholders of the United States Cement Co. have elected the following officers: President, P. P. Renn; secretary, John F. Renn; treasurer, John C. Schmidt. The directors are H. E. Jewett, Peter P. Renn, John F. Renn, James Taney and John C. Schmidt.

Suit has been instituted by the T. L. Smith Co. against E. E. Peterson and others, for a total of \$2,000 for violation of contract, which involved the sale of a concrete mixer.

Announcement is made that Julius Hartman, for three years superintendent of construction for Clark & Loomis, architects, and the past two years superintendent of construction for Arthur Loomis, has entered into partnership with Mr. Loomis.

The Standard Brick Co., Mayfield, Ky., has filed articles of incorporation, capital stock \$10,000, incorporators, O. S. Waggoner, X. B. Wickersham and G. R. Allen.

Articles of incorporation have been filed by the West Virginia Clay Products Co. W. E. Caldwell, Louisville, is president; A. H. Robinson, vice-president; Sam P. Jones, vice-president; R. H. Yates, secretary and treasurer, with headquarters at Charleston, W. Va. Capital stock, \$200,000. The company will make face brick, terra-cotta tile and roofing.

The Unit Brick & Tile Co., of Louisville, controlling the Kentucky rights of the Sawyer patent brick, has filed articles of incorporation, capital stock \$50,000. Dennis H. Long, president; S. D. Adkinson, treasurer; D. P. Vanarsdall, secretary. The plant will be located on the L. & N. track at Second and Central avenue.

The current Rivers and Harbors bill will provide over \$750,000 for the enlargement of the Louisville and Portland canal and the construction of a new side lift concrete lock, south of and by the side of the present lock. The lock chamber will be 85x600 feet.

The city council at Winchester, Ky., has made arrangements for the sale of bonds to the amount of \$40,000 for a city building and to the amount of \$65,000 for a sanitary sewerage system.

A bond issue of \$600,000 for streets and sewers will be submitted to the voters of the city of Lexington, Ky., in the near future. Mayor Skain has chosen a bi-partisan board of four commissioners who will have exclusive control of the expenditure. They are as follows: C. M. Manning, secretary of the Security Trust Co.; Judge Matt Walton, member of the board of aldermen; Charles Kerr, a well-known attorney, and J. Edward Bassett, president of the Fayette National bank.

The U. S. treasury department will spend millions of dollars in public buildings in Kentucky this year. The drawings and specifications have been completed for the Frankfort and Lexington buildings, as well as for the Louisville marine hospital, and bids will shortly be advertised for. Working drawings are yet to be made for the Lebanon, Mt. Sterling and Somerset buildings. Senator Bradley is forcing progress as far as possible, in all these movements, which mean so much for the towns interested.

A bill will be introduced at Frankfort this week, at the meeting of the Kentucky legislature, in the interest of good roads. There are in fact three bills to be brought up, one authorizing each county to issue bonds to improve and build roads; the second creates a state department of public roads, and the third provides for a fund to build and maintain roads in the state.

R. B. Hutchcraft was in the city this week to close arrangements with local capitalists for the development of a cement field and coal mines in Rockcastle county. The company will be organized within a couple of weeks and will undoubtedly be a very important addition to Kentucky's commercial interests.

On March the first of this year the Louisville commissioners of sewerage will have been at work for four years and their terms will expire. It is probable Mayor Head will request the same gentlemen to continue, or rather, to complete the work which they have been doing so well, which includes nearly \$2,000,000 worth of sewers, and contracts amounting to \$1,200,000 are now being executed. The southern outfall, which cost \$1,250,000, will be finished this coming summer.

The Sneed building on Market street, the first of its kind in Louisville designed by D. X. Murphy & Bros., will be erected at once. It will be equal in magnitude to any in the larger cities. The second section of the Lincoln building, fifteen stories in height, is being planned, and will be an exact duplicate of the old building, alongside of which it will be erected, and will form with the old structure one big building. The Tyler hotel at Third and Jefferson streets, begun late last year, will be completed during this year. On the site of the first Christian church, a big building will be erected as soon as the property is vacated by the congregation.

Activity in building operations will characterize church work during the coming year. The expenditures by churches of all denominations, planned and made, will be in the neighborhood of \$700,000: The First Christian, \$175,000; improvements by the Second Presbyterian, \$82,000; St. Matthews German Evangelical improvements, \$30,000; St. Cecilia's Roman Catholic, \$40,000; St. George's Catholic, \$25,000; Fourth Avenue Baptist, \$40,000, and many other improvements and buildings, which will bring the total to the amount above mentioned.

Bailey & Koerner, contractors, got the contract for the erection of the new office building of the Louisville Water Co., over seven other bidders, with their bid of \$53,304. The structure is promised by July. The highest bid was \$59,985. This same firm of contractors were successful with their bid of \$123,000 in securing the contract for the building of the new Broadway school. This will be the finest grade school owned by the city. Brinton B. Davis is the architect.

The Kentucky Electric Co. will erect within the next two or three months a power house to cost over \$300,000; plans and specifications will be submitted shortly. The company's engineer, L. S. Streng, is hard at work on his job.

C. T. McCracken & Co., of Columbus, Ohio, submitted the lowest bid, \$30,000, for the contract for construction of the Zane street sewer. The Henry Bickel Co. and E. A. Barker & Sons, of Louisville, were the other firms that submitted bids.

LITTLE ROCK AND VICINITY.

LITTLE ROCK, ARK., Jan. 18.—Building trade conditions here are encouraging. The State National bank skyscraper is progressing rapidly. William Miller & Sons Co., of Pittsburg, Pa., are finishing up the state capitol building. Gov. Donaghey has already moved his office into the structure and will supervise the finishing. He himself is a contractor.

The Hydraulic Sand & Stone Co., of which E. N. Wiggle is manager, is supplying crushed stone for many enterprises in the state of Arkansas.

The White Cliffs Portland Cement Co., of Little Rock, Ark., has been chartered with a capital of \$100,000, all of which is subscribed. The incorporators are: B. G. Lane, of San Antonio, Tex., president; George Vaughan and F. B. Lang, of Little Rock. The company proposes to purchase the property of the Southwestern Portland Cement Co. at White Cliffs, Ark.

The Mechanics' Lumber Co., of Argenta, across the river from Little Rock, is handling all kinds of builders' supplies. It has lately furnished several large plaster contracts and the cement used on two new public schools. The management report business as good.

The Fort Smith Crushed Stone Co., at Fort Smith, Ark., is turning out about 200 yards per day. Horace F. Rogers is president of this company, H. L. Rogers is secretary and W. D. Young is treasurer.

The Oklahoma Supply Co. at Muskogee, Okla., is handling sand and gravel from the Arkansas river and reports business as good.

The Poncey Paving & Construction Co. of Helena, Ark., has the contract for building a new sewer at Camden, Ark. The price was \$5,530. The sewer is to be completed this month.

Smith & Bramlett, Muskogee, Okla., report a very good building trade situation in that city. They are interested in cement work and similar lines.

KANSAS CITY.

KANSAS CITY, MO., Jan. 18.—The board of public works has ordered that the city's specifications for sewer construction shall be revised so as to admit proposals for reinforced concrete pipe, as well as clay pipe. This action was taken on the recommendation of a special committee which went to New York and other points in the East to investigate the reinforced concrete pipe. The committee consisted of Lyman S. Banks and Wallace Love, of the board of public works; James L. Darnell, city engineer; John Donnelly, a former city engineer, and Alderman W. C. Culbertson, chairman of the upper house council committee on public improvements.

Carl Boller, of this city, is preparing plans for a theater building to be built for Sullivan & Considine, on McGee street near Twelfth. It will be two stories and basement and will be of reinforced concrete construction.

The Pittsburg Vitriified Paving Brick Co. reports a disastrous fire at its plant in Pittsburg, Kan., which was only partly covered by insurance. Work is already in progress clearing the site, and a new plant, thoroughly fireproof, is to be constructed at once, with the hope that it will be ready for operation by April 1.

The Century hotel is to be enlarged to double its present capacity by an addition on adjoining land.

E. W. Hayes is putting in the foundation work for a 7-story warehouse, of fireproof material, at 2001-5 Holmes street.

The Pittsburg Lime & Cement Company reports having sold six cars of its Flint fire brick to the Home Light, Heat & Power Co., of Pittsburg, Kan., to be used in the construction of its plant.

I. Donnelly has the contract for the stone work on the A. Holtman building at Eighteenth and Holmes, and Flanagan Bros. have the brick contract on the same building.

F. E. & A. M. Gloyd are preparing to duplicate the big reinforced concrete building they built in this city and leased to Montgomery Ward & Co. The new building will be by the side of the other one, and will be leased to the same concern. It will be nine stories high and 100x160 feet and will cost about \$300,000.

Dansiger Bros., wholesale liquor dealers, are planning the erection of a 7-story reinforced concrete building.

The Thomas H. Swope Social Settlement is soon to let the contract for its main building, to be between Sixteenth and Seventeenth street on Campbell. It will have a frontage of 105 feet and a depth of 145. It will be of brick and stone construction.

Otis Goddard is preparing plans for a three-story and basement hotel building 45x120, to be erected at 917-19 Tracey avenue, to be made of brick, and to cost about \$40,000.

There will probably be a greater demand in Kansas City for cement the coming year than there ever was before, as a good deal of the railroad viaduct work will be under way and will require immense quantities of cement, as most of the viaducts will be of reinforced concrete construction.

The Lumbermen's Portland Cement Co. will start its brick plant January 21, under the management of I. R. Lampert, but the cement plant is not yet ready for operation. This company will run a special train of Pullman cars from this city the evening of January 27, at the close of lumbermen's convention, to its plant, and will not only show the lumbermen what they are going to do, but will also show them a good time.

W. H. Smith has succeeded A. Baumbarger as manager of the sales department of the Kansas City Portland Cement Works, and he has made a change of the entire force in the sales office, with the one exception of the office boy.

The Marblehead Lime Co. is making preparations to show the visitors to the lumbermen's convention a few things at its booth, and some of those who have given hydrated lime little thought in the past will get the opportunity to see what can be done with it. This company has been doing some very effective work for the retailers of this country in the way of advertising matter. It now has a list of small folders, prepared especially to hand out to the men who are doing the various classes of work for which hydrated lime can be used, and one especially for the dealer, to call his attention to the fact that hydrated lime is no experiment, and that its merit has been proven time and again. In addition to other instructive literature the company now has in preparation a pamphlet to be given out by the trade to the farmer, telling him of the many ways in which he can make use of hydrated lime, in patchwork, whitewash, disinfectant, dust spray, bordeaux mixture, fertilizer, sweetening sour land, making paints, putty, calcimine, axle grease, softening water, purifying and filtration work, etc.

MEMPHIS AND THE SOUTHWEST.

MEMPHIS, TENN., Jan. 17.—Building activity promises to be very large in Memphis during 1910. Two sky-scrapers are under way here now, a loft warehouse building in reinforced concrete, an elevated viaduct of concrete between business houses, and numerous general construction jobs. The building supply business is very fair, though prices on cement are nothing to boast about. The lime and sand trade is active.

Among the buildings in Memphis for which permits have been secured are the Central Bank and Trust Co.'s skyscraper, \$750,000; the Memphis Bag Co.'s warehouse, \$85,000; the Baptist memorial hospital, which will cost \$250,000; the new Industrial high school for which plans have been accepted by the school board calling for a \$250,000 building, and three new ward schools, costing altogether \$150,000. The Union Depot and Exchange skyscraper is another notable structure for which preliminary work is on. The old Cotton Exchange building has been torn down and the Exchange has temporary quarters on Front and Gayoso. Architect N. M. Woods, Goodwyn Institute, has prepared the plans for the skyscraper. It is noted that around the demolished building stands the first granolithic walk ever built in Memphis. It was laid in 1885 and is well preserved. The new structure in its eighteen stories will represent an outlay of \$1,275,000. The site on which it stands is valued at \$400,000.

Another big office building will soon be under construction in Memphis if the plans of J. Napoleon Falls materialize. For some years Mr. Falls has considered tearing down the building at 26 N. Front street and erecting a handsome hotel or office building. Mr. Falls now contemplates a reinforced concrete structure, similar to the Kallaher building now under construction. The building will cost approximately \$200,000. It will front 92½ feet on North Front street and run back 148½ feet to Center alley.

Work has begun on the new garage and bachelor apartment house at Madison avenue and Fourth street by the Memphis Building Co. The skeleton concrete work has started for the Luna Dome theater. The building, when completed the first of April, will cost approximately \$30,000. The structure will have a modern garage on the ground floor. The other floors will consist of eighty bachelor apartments. F. H. Presler is the owner.

Architects Shaw & Pfeil, Tennessee Trust building, planned the reinforced concrete bridge that is being erected to connect the two stores of B. Lowenstein Bros. across a court west of N. Main. The bridge is thirty feet, two stories. This firm has planned considerable concrete work recently, including two culverts 160 feet long and 30-foot span for the Lee estate and for the Bolen-Huse Ice Co. They have also designed a \$15,000 reinforced concrete stable for the City Water Co. and have finished a reinforced concrete warehouse of elegant proportions for Crane & Co. Among the recent handsome pieces of work by this firm was the Bry-Block department store rebuilt with the Kahn system throughout, the entire interior of the old Equitable building having been gutted or greatly damaged by fire.

The Selden-Breck Construction Co. is maintaining a Southwestern office here. In Memphis the company is building a concrete warehouse for the Memphis Bag Co. They have several small jobs about town.

H. P. Johnson, of the Union Sand & Material Co., was visited by THE ROCK PRODUCTS correspondent. Mr. Johnson states that the high water and ice recently prevailing in the river had affected adversely their pumping facilities and that this was the first ice to amount to anything for six years. He reports that stocks of cement are greatly reduced over the country as compared with a year ago and that the demand is exceedingly good, but prices are low compared with those of the last three or four years.

The Union Sand & Material Co. is furnishing the Illinois Central and Y. & M. V. railroads with large quantities of ballast and will resume this work as soon as the weather permits.

D. Emmons & Co., building contractors here, have removed from their old location, corner of Front and Madison, to the eighth floor, Tennessee Trust building.

The Southern Ferro Concrete Co., of Atlanta, Ga., is doing considerable work about Memphis. At present the company is building the 10-story loft building, known as the Kallaher building, that is of reinforced concrete and which will be used for warehouse purposes.

Bids are being taken by the city park commission for a \$15,000 concrete public comfort station to stand in Court square, this city. This is one of the first buildings of the kind to be erected in Memphis. Other concrete work lately done in Memphis is the building of the American Snuff Co. and the Baptist Hospital.

The Cubbins Brick Co., this city, has been furnishing the material for buildings for the Phoenix Cotton Oil Co., the Riverside school and the Lee garage.



Superior Workmanship in Plaster.

Plastering as a fine art has come to be the general rule instead of exceptional nowadays. We see more high class work than in former years. There is more attention being paid to the artistic side, and as a consequence theaters, hotels and other public buildings are today commanding the attention of the finest architects and the leading plasterers in this country.

Many of these interiors are very ornate and call for not only the highest expression of architectural skill in drawing and planning, but also the finest workmanship obtainable. The improvement in the manufacturing of materials has also aided in the working out of problems tending toward the general improvement of the entire industry.

The great manufacturers of plaster are to be congratulated upon placing on the market materials far superior to those of a few years ago. The manufacturers have studied the needs in this line, as no other manufacturers, and so have aided very materially in the development of what is today one of the greatest industries in this country, in point of the amount of money expended.

Two More Big Mills in Iowa.

FORT DODGE, IA., Jan. 18.—Two more big plaster mills for Fort Dodge, and one of them to be as large if not the largest in the United States, is the promised boost to the building prospects for Fort Dodge and vicinity for next year which, even without this large addition, have never been brighter. The two new big plaster mills that are practically assured will cost between \$300,000 and \$400,000. The larger of the two will be erected by the United States Gypsum Co., and the other by the American Cement Plaster Co., which company purchased a valuable deposit in the vicinity of Gypsum the first of the present year.

Buffalo Man Transferred to Chicago.

BUFFALO, N. Y., Jan. 18.—Holcomb J. Brown, who for three years has been superintendent of the United States Gypsum Mills at Oakfield, has gone to Chicago, where he will continue in the employ of the company.

Tile Made of Cement Plaster.

GRAND RAPIDS, MICH., Jan. 18.—The American Cement Plaster Co., the youngest of these industries in the Grand Rapids district, is adding a department to produce and market a partition tile. This is made from cement plaster and fiber, is to take the place of clay tile for partition work, and the experimental stage has been passed. The company expects to be placing the tile on the market early in the spring. The company's plant is on Butterworth avenue, and since beginning operations it has steadily increased its business.

Extensive Improvements at Tacoma.

TACOMA, WASH., Jan. 15.—Improvements on the Pacific Coast Gypsum Co.'s plant are about half completed, and in about two months it is expected the concern will be in a position to increase its output by one-third. The improvements comprise the erection of new bunker space and a kettle addition. The new gypsum bunkers are located on the south end of the company's plant on the city waterway, and are 40x50 feet and three stories high.

The new kettle room, where the crude rock is made into plaster, is 26x36 feet, three stories high. The kettle has already been installed, and the roof is half over this room and the gypsum bunkers.

The company recently increased the output of its mines in Alaska. The Alaska Steamship Co. has a contract for bringing the gypsum to Tacoma.

Plaster Operations in Oklahoma.

HOMESTEAD, OKLA., Jan. 17.—The Cement Products Co. and the Oklahoma Gypsum Co., H. E. Wilson general manager, will at once install plants for the manufacture of cement and plaster. Machinery and building material are partly purchased. The plant will be ready for operation within six months. The companies have a capital stock of \$250,000; C. F. Haglin president, E. G. Potter secretary.

New Directors Hard Wall Plaster Co.

UTICA, N. Y., Jan. 18.—At the annual meeting of the American Hard Wall Plaster Co. the following directors were elected: Thomas R. Proctor, Joseph I. Swan, George F. Weaver and J. Lin Hughes. Mr. Proctor was elected president, Mr. Swan vice-president, Mr. Weaver treasurer, Mr. Hughes secretary and general manager, and E. E. Adams assistant treasurer.

Judgment For Gypsum Co. Employee.

BATAVIA, N. Y., Jan. 17.—The appellate court has affirmed the judgment for \$10,000 obtained by Charles Fox against the Niagara Gypsum Co. Fox had both legs cut off while working for the company. The full bench concurred in affirming the judgment of the lower court.

Gypsum Quarries in Nova Scotia.

HALIFAX, N. S., Jan. 10.—The gypsum quarries at Munro's Point, operated by the Victoria Gypsum Mining and Manufacturing Co., shipped about fifty thousand tons during the past year. They employ about 130 men during open navigation and a less number during the winter months. A railroad about four miles long connects the quarries with their shipping pier at Munro's Point, St. Ann Bay.

The Newark Gypsum and Gypsum Co., of Newark, N. J., having its chief place of business at Hillsboro, N. B., has opened gypsum quarries of a superior quality at Ottawa Brook, from which place they have constructed four miles of railroad to McKinnon's harbor, which will be their shipping port.

The Maritime Gypsum Co.'s plaster mines, situated at Clates Siding, Nappan, about three miles from Amherst, have been worked experimentally for the past two years. Now, however, that it has been demonstrated that the deposit amounts to over three million tons, and that the quality is very high, the company is installing modern machinery, in order to develop the property to its fullest capacity. A New York company began development work about four years ago, but owing to the financial stringency it suspended operation in 1908. Within the past year the company has been reorganized, and a new board of directors installed. D. L. Haigh, president of the Rock Plaster Co., New York, was made president. H. J. Logan, of Amherst, is vice-president, and W. W. Kenly, M. P., is treasurer. Arthur T. Avaré is the superintendent of the works. The company owns and operates a railroad between Nappan and tide-water at Amherst Point, and has a large shipping wharf at the latter place. Since the reorganization of the company about \$20,000 has been expended this season in inaugurating a new cable system, installing electric power, and in the further development and improvement of the property. The plaster rock is conveyed direct to New York by steamer from Amherst Point.

Rich Strike in Montana.

GRANT FALLS, MONT., Jan. 15.—The United States Gypsum Co., which owns the plaster mill in this city recently erected by the Mackey company, and which owns and operates 37 similar plants in various parts of the United States, has leased 120 acres of gypsum bearing land on Belt creek, six miles above Arming-ton and five miles below the Riceville gypsum mines. The fact that the land is gypsum bearing was only recently discovered by the employees of the company, who were prospecting Mr. Siegling's land with his permission. A fine vein of gypsum some 12 feet in width has been uncovered. The gypsum company will not purchase the land, but will mine the gypsum found on it on royalty. The mine is located only a quarter of a mile from the Great Northern road, and it is understood that the leasers will build a spur to handle the output.

Plaster Contractor With a Record.

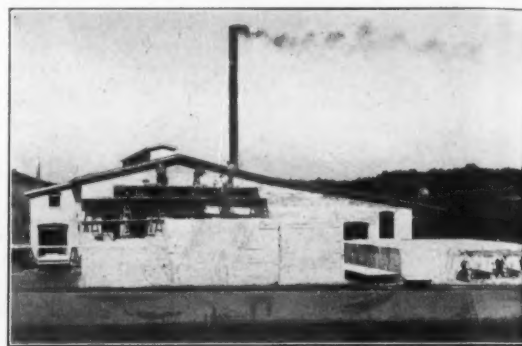
PORTLAND, ME., Jan. 17.—Richard K. Gatley, one of the oldest and best-known plaster contractors in this part of the country, died December 17 from Bright's disease. He was 74 years old, and a native of England, but had lived in this country since early manhood. He served in the Union navy during the civil war, and at the time of his death was past department commander of the G. A. R. for Maine. He settled in Portland in 1866, and had lived here ever since.

Monument Plaster Co., Newark, N. J.; \$50,000 capital; C. F. Kendall, Cambridge, Mass.; T. J. Man-nion, New York; E. W. Kendall, East Orange, N. J.; to manufacture plaster, stucco, tile, blocks, etc.



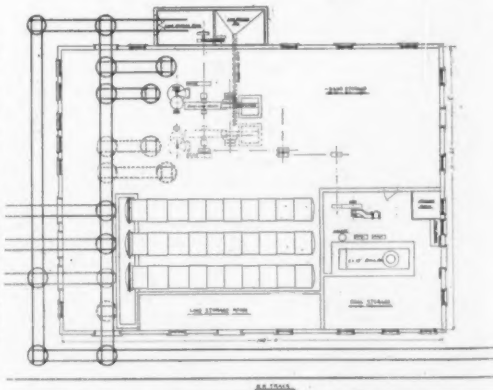
Successful Operation at Grand Rapids.

GRAND RAPIDS, MICH., Jan. 19.—Among the brick plants erected during the past year is one furnished by the American Sandstone Brick Machinery Co., of Saginaw, Mich., to the Grande Brick Co., of Grand Rapids, Mich., that is worthy of mention for the reason that it is not only a model factory, from a standpoint of machinery and design, but has established its product on the market in such a remarkably short time that it bids fair to be one of the greatest successes in the sand-lime brick industry. It required a great deal of nerve to locate the plant in a vicinity where sand-lime brick was practically a dead product, as there had previous to this time been three failures in this business. Besides, it is right in a clay brick district and competition is very keen. The plant was furnished complete by the



PLANT OF THE GRANDE BRICK CO., GRAND RAPIDS, MICH.

Saginaw company, and it was just five weeks from the time ground was broken for it in April when it commenced to manufacture brick, and within a week's time it was running at full capacity, turning out over 23,000 brick per day of ten hours on a single rotary press. Up to the first of the year it had manufactured 4,000,000 brick, all of which are sold, and the company is at present 2,000,000 brick behind in its orders. It has lately put on a night force and is now running day and night, manufacturing between 47,000 and 48,000 brick per double shift on the one press. The company expects within a short time to install another press and hardening cylinder, which will



GROUND PLAN OF THE GRANDE BRICK COMPANY'S PLANT, GRAND RAPIDS, MICH.

make the capacity of their plant between 80,000 and 90,000 brick per 24 hours.

Provision was made in the erection of the plant for the doubling of the capacity, the buildings, engine and other machinery being ample for this output, and all the necessary foundations being run in when the buildings were erected. The plant has one large size, 12-pocket, rotary press and three 53' hardening cylinders, provision having been made for another cylinder in the space now used for lime storage. The lime grinding room and lime storage bin are outside the building, which makes it free from all lime dust. The plant is driven by a 75 h. p. engine and all the machinery is installed on the ground floor. The installation is very simple and accessible, and

in fact, is conspicuous for the absence of machinery. Two line shafts and one engine countershaft drive the entire plant.

The building has a sand storage space in one corner sufficient for the storing of a week's supply of dry sand; sand being brought to the factory from the sand hill in carts, is dumped into an elevator and conveyed to the top of the building, where it is discharged through a spout on the pile within. This spout swings on a swivel joint so that the sand can be conveniently placed wherever desired.

The Komnick system is used in manufacturing the brick, and the plant requires from 14 to 16 men to manufacture 23,000 brick per day. By the arrangement of the double turntables in front of the press, the press is kept in continuous operation and is not shut down when the cars are being shifted. By this means the company says it is able to increase its capacity from 2,000 to 3,000 brick a day. The factory is located on the edge of the city limits, on the P. M. tracks, and about 100 feet off a paved road, so that it has excellent handling and shipping facilities.

Demand for Sand-Lime Brick Growing.

DAYTON, O., Jan. 20.—W. H. Crume, president of the Crume Brick Co., of this city, regards the situation as favorable. He says:

"We are manufacturers of sandstone brick, our plant being equipped with Komnick or Saginaw brick machinery. We began operations in July last and have run continuously since then and we expect to run throughout the winter. We anticipate a very prosperous year as we have on hand orders for over one and a half million brick, for winter and early spring delivery, and the prospects are that we will have all the business we can possibly handle when the regular building season opens.

"While the clay brick manufacturers and trade papers are trying to discredit construction, we find that, owing to the quality and white color of our brick, it appeals to the architect as the ideal brick for use with concrete skeleton buildings, for curtain walls and partitions; and fully eighty per cent of our orders are for brick for this type of building."

Good Business Done at Buffalo.

BUFFALO, N. Y., Jan. 20.—W. E. Plummer, Jr., secretary of the Buffalo Sandstone Brick Co., has the following to say relative to the local situation in his line:

"In 1909 we manufactured four times the amount manufactured in 1908 and sold practically our entire output. The Buffalo market alone has taken about two million this season, and the prospects for next year are good. We got no large building, but put them in a number of jobs, so that we got them in evidence all over the city. The trade as well as some of the architects are beginning to recognize us as a strong factor in the building material line."

Dyett Co.'s Annual Meeting.

PORT JEFFERSON, N. Y., Jan. 20.—At the annual stockholders' meeting of the Dyett Sand-Lime Brick Co. the following directors and officers were elected for the year 1910: James R. Bateman, president; Frank A. Howson, vice-president; Edward H. Mangels, secretary; George E. Darling, treasurer; James H. Dyett, general manager; Fred L. Smith, consulting engineer; Martin H. Brunjes, Ludwig Hellwig, A. L. Wakefield.

Dividend by Mississippi Co.

ABERDEEN, MISS., Jan. 18.—The stockholders of the Aberdeen Sand Lime Brick Co. have elected the following officers and directors: Judge Baxter McFarland, president; Addison Brannin, vice-president; C. E. Hamilton, treasurer; R. E. Bradley, secretary. Directors: T. F. Paine, J. W. Bolding, J. S. Hopkins, Pat Bradley, A. Brannin, R. E. Bradley, Baxter McFarland. A 5 per cent dividend was declared.

New Silica Mill in Virginia.

RICHMOND, VA., Jan. 19.—Beal Brothers, of Scottsville, announce that plans are maturing rapidly for the operation of their silica quarries. A company is being organized by a number of well-known citizens to erect a milling plant for forty tons of ground silica each day. Within thirty days operations will commence for opening the quarries and getting them in shape for regular mining work. The mill, when completed, will be the first of its kind in the state of Virginia and the second to be established in the South.

The organizers of the silica company have made certain of a market for their product in advance of production, which saves the cost of experimental work.

SAND AND GRAVEL

NOVEL GRAVEL PLANT.

Outfit of Joliet Sand & Gravel Co., One of the Most Unique in the Country.

The plant of the Joliet Sand & Gravel Co., located on the Elgin, Joliet & Eastern railroad, about one mile below Plainfield, Ill., is of interest from the fact that the gravel is excavated from below the water line. The gravel in this deposit varies in depth from 17 to 25 feet. Above water line there is a strata about 10 feet in thickness, which was, however, re-



PLANT OF JOLIET SAND AND GRAVEL COMPANY.

moved by steam shovels and shipped raw prior to the building of the washing plant. The gravel in this pit is comparatively clean and washing is not so necessary for cleansing purposes as for sizing, although, of course, what soil or foreign matter there is in the gravel is removed in the washing and the quality of the gravel thereby improved.

The gravel is excavated by a Page drag line excavator, moved ahead by its own power and leaving behind it a lake varying according to the depth of the gravel. Standard gauge tracks run parallel with the drag line trench and the excavator fills drop bottom ballast cars spotted along this track. The excavator has a boom 60 feet in length and cuts most economically a trench about 90 feet in width. Only two men are required for operating, an engineer and a fireman, and the capacity runs from 800 to 1,000 cubic yards per day of ten hours.

centrifugal pump which forces water to the head of washing plant.

The power house is situated about 20 feet to one side of the main conveyor trestle and the above line shaft is carried on concrete piers into the power house, where it receives power by belt from a 200 h. p. Porter-Allen automatic engine. Steam for the engine is furnished by a 300 h. p. Heine water tube boiler, paratus, embracing heaters, feed pumps, etc., is provided, making the plant most economical in every way.

The belt conveyor trestles and screen framework are of timber construction, but the storage bins consist of round steel tanks 18' 0" diameter and varying in height from 29' 0" to 42' 0". These rest upon concrete foundations and have two gates and loading



STEEL BINS, LOADING CHUTES AND GALLERY OF JOLIET SAND AND GRAVEL CO.

The gravel cars are hauled from the excavator to the washing plant by a 40-ton 4-wheel locomotive, and on arriving at the plant run up a 3-percent grade and over a concrete hopper of 50 cubic yards live capacity. Beyond the hopper the track descends on a 4-percent grade down to the main pit track level, and thence back to the excavator, thus completing the circuit, and keeping all equipment moving in the same direction at all times.

From the hopper the gravel flows onto a 30" inclined Stephens-Adamson belt conveyor, conveying and elevating the same to the head of the washing plant some 70 feet above ground line and 160 feet distant from hopper track. Here the stream of gravel divides and flows to the head screens of two rows of 36 and 54x72" Gilbert screens, each row con-

chutes on each side for loading railroad cars. Steel bins, while more expensive than timber, have the advantage of being more durable, and hence are warranted where a plant is expected to be operated for a great many years.

Loading tracks, each over a mile in length, are provided on both sides of the bins, giving ample track room for both loaded and empty cars.

The plant has been in operation some two years, and under the able supervision of Edward Renwick maintains a constant output of 25,000 cubic yards monthly, or about 800 cubic yards daily, with a crew of from ten to twelve men, depending upon the amount of new track work in the pit, and we believe holds the record for low cost of production and continuity of operation.

The plant was designed by the J. C. Buckbee Co., engineers, of Chicago.



National Lime Manufacturers' Association

Meets Semi-Annually.

OFFICERS.

William E. Carson, Riverton, Va. President
Charles Weller, Milwaukee, Wis. 1st Vice-Pres.
Walter S. Sheldon, Hamburg, N. J. 2nd Vice-Pres.
M. H. Deely, Pittsfield, Mass. 3rd Vice-Pres.
C. W. S. Cobb, St. Louis, Mo. Treasurer

EXECUTIVE COMMITTEE.

William E. Carson, ex-officio; Chas. Warner, Wilmington, Del.; T. E. Fleischer, Sheboygan, Wis.

Every manufacturer of lime should consider it a duty to himself, and to the lime industry, to attend the annual meeting of the National Lime Manufacturers Association at Pittsburg, Pa., January 26-27, 1910. This applies to all manufacturers of lime, regardless of membership in the association.

LIME CONVENTION.

Important Meeting to be Discussed at the Annual Meeting at Pittsburg this week.

RIVERTON, W. VA., Jan. 18.—President W. E. Carson has prepared a fine program for the annual meeting of the National Lime Manufacturers Association, which is to be held at Pittsburg, Pa., January 26-27.

One of the principal features will be a report of the progress made at the U. S. government testing laboratories at Pittsburg, Pa. These laboratories were established as a direct result of appeals made by the national association and the official report as to what has been accomplished will be of unusual interest to the members of the association, especially in the way of advising them concerning the most improved and economical methods of production.

This report will be made by Prof. A. V. Bleining, who is in charge of the laboratories, and has conducted a most important work along the lines of original research, and the results will be given in detail, particularly as they apply to the development of lime-producing apparatus.

While the minutes of the proceedings are not distributed outside of the membership, and the papers discussed are not published, President Carson has extended an invitation to all lime manufacturers, regardless of membership, to attend the convention, and to listen to the various reports and the discussions which follow. This opportunity will undoubtedly be taken full advantage of by the trade generally, as a large number of acceptances have been already received.

The program will include the following features:

"Report of Progress and Demonstration of Apparatus Used at the Testing Laboratories for Lime Investigation," by A. V. Bleining, Chief Chemist.
"Results of Some Lime Investigations, Lime Kiln Designs and Methods of Creating Draft for Lime Kilns," by W. E. Emley, Junior Chemist U. S. Geol. Survey.
"Decomposition of Limestone, and Pyrometry for Lime Manufacturers," by J. K. Clement, Chemical Engineer, U. S. Geol. Survey.
"Spreading Qualities of Mortars," by H. E. Ashley, Chemist U. S. Geol. Survey.
"Use of Lime in Agriculture."
"Use of Lime in Spraying Fruit Trees."
"Construction of Lime Kilns."
"The Hydration Problem."
"The Gas Producer Kiln."
Discussion will follow the reading of each paper.

Charles Warner, of the executive committee, who has been active in assisting President Carson in ar-

ranging the details of the meeting, is particularly sanguine about the importance and magnitude of the convention, especially as it relates to the experimental work being conducted at Pittsburg. In this connection Mr. Warner says:

"I have in mind particularly what has been done in connection with the government experimental work and kiln and plant investigations that have been started forward during the past year, and are now being centered and developed in the Pittsburg government laboratories.

"Of course, many other important developments in the lime industry are coming along year after year, and the national association is doing its part towards presenting them to its members for the best interests of the trade as a whole.

"I think we will have a rousing good meeting at Pittsburg and will certainly have our own company well represented.

"The new year looks promising, and everybody should be happy and optimistic, as a good year appears to be before us in a business way."

New Plant for Apollo Co.

APOLLO, PA., Jan. 18.—Concerning the new plant being erected here by the Apollo Lime & Ballast Co., W. L. George, an official of the company, says:

"This is an entirely new plant, not merely an addition. Work is being pushed, and we expect it will be ready for operation early in the spring."

Preparing Lime For Farm Use.

CHICAGO, Jan. 19.—A writer in the *National Stockman and Farmer* says:

Many farmers owning beds of limestone are wanting to know whether they cannot buy equipment to reduce their raw limestone to a powder for use on land. I have been told that there is an equipment that can be bought for six or eight hundred dollars and will pulverize limestone, but it cannot be possible that such equipment would reduce raw limestone to a powder sufficiently fine to give full effectiveness. The machines used in the well-equipped plants which we are familiar with are very expensive. Immense power is necessary to put limestone into a form of powder, although any crusher will give some small percentage of well-powdered limestone when furnishing a coarse product to meet various market demands. I believe that farmers must depend upon manufacturers for their supply of raw limestone and very many of our lime plants are not equipped to pulverize raw limestone sufficiently well.

A disadvantage in handling pulverized limestone for farm use is that the freight charges are unduly heavy if the distance from the quarry is great. Two tons of pulverized limestone are required to secure the same effect as one ton of the burnt lime.

Manufacturers are seeking to extend the use of hydrated lime. It is put into small packages that make the handling convenient to the farmer, and while one ton of it does not have as much power to correct acidity as one ton of the burnt lime before it is hydrated, yet its convenient form for distribution on the land may enable the farmer to get more value from a ton of hydrated lime than he would from a ton of stone lime which he would slake in a crude way, and fail to distribute over the soil as evenly as is possible in the case of the powdered lime.

Agricultural Lime in Michigan.

PETOSKEY, MICH., Jan. 17.—The Michigan Lime Co., whose works are located just over the bluff along the bay, is to manufacture an agricultural lime for fertilizing land that has too great a supply of acid.

The new plant is located at the company's lime kiln and has been built with an idea of a good business from the start and a comfortable increase within a year or so. The lime will be burned at the kiln and then crushed with special machinery almost to powder, at least fine enough to be used in seeder drills. The lime will be used more extensively in southern Michigan, where the land contains too much acid for the good of crops raised there. Lime is also being more extensively used in the spraying of fruit trees and on garden truck farms, and also by the general farmer.

This plant is the only known one of the kind in the state.

Rockford Firm Bids for Trade.

ROCKFORD, ILL., Jan. 19.—Hart & Page, who have quarries and lime kilns both here and at Ruby, Ill., are becoming important factors in the independent field, and are shipping large quantities of lime and crushed stone for a radius of 150 miles. Four kilns are being constantly operated, and two more are under construction, to be ready for the spring trade. The product, a high-grade, wood-burned lime, is high in favor with builders, and orders are coming in for it from all parts of the country.

"We can lay down lime, freight paid, at almost any point within 200 miles of Rockford, at prices that will make it an object for builders to do business with us."

This is the assertion of Mr. Hart, the senior member of the firm. He further says:

"The quality of our lime is such as to make it a favorite with all good judges, and our business is increasing right along. At present we are making a specialty of lump lime, but are figuring on the installation of a hydrating plant. We are reaching out after business on an independent basis, and the combination of the right kind of goods and the right kind of prices is having a pronounced effect."

The Hart & Page plants are both well equipped, and so located that economy in transportation is assured. "We don't care where the orders come from," said Mr. Hart, "we can fill them promptly."

New England Lime Co.'s New Offices.

DANBURY, CONN., Jan. 18.—The New England Lime Co. has moved its offices from Canaan to this city, and is now occupying the former Savings Bank of Danbury building, recently vacated by that institution. President Charles E. Griffing, the head of the company, will have his office in one of the rooms back of the main business office, as will also the secretary, David Follette. The general superintendent of the company, Wallace Canfield, will have his office in this building, as will also the general salesman of the concern, L. E. Hager.

The plants of the company are located in Redding, New Milford, Canaan, East Canaan, West Stockbridge, Lenox, Renfrew, Mass., North Fowal, Vt., and Brookfield.

New Lime Plant For Kentucky.

IRONTON, O., Jan. 17.—That Portsmouth and Greenup capital is to be interested in a new industry to be started at Limeville, Ky., is the news that comes from Greenup. The plan is to build a lime crusher and erect kilns at Limeville on the Merrill farm, for the purpose of supplying crushed and burned lime to local markets.

There is plenty of material close at hand and the product is expected to find ready sale. Years ago there was a similar plant at that point, managed by Charleston capitalists. The lime was extensively used in West Virginia and was first class. For some reason the plant was abandoned and its ruins are still standing. Some of the old kilns may be used in the proposed plant.

Receiver For an Ohio Co.

BELLEFONTAINE, O., Jan. 18.—Henry W. Renkert has been appointed receiver for the Bellefontaine Stone & Lime Co., on the petition of Frank Dowell, J. M. Hamilton and E. M. Hamilton, who assert that the company is insolvent. Among the claims is a note of \$1,000 held by the Bellefontaine National Bank, and another note for \$6,000 held by the Savings Building & Loan Co., of Bellefontaine. This latter company holds a mortgage on the property of the bankrupt company and is therefore made a party defendant in the action.



PLANT OF THE BANCROFT LIME CO., POCATELLO, IDAHO.

Use of Lime on Farming Lands.

In a recent issue of the *Rural New Yorker*, a correspondent living in Maryland says:

"I can buy crushed, unburned limestone in bulk for \$4.45 per 2,000-pound ton, and burned lump lime at \$4.15 per 2,000-pound ton. I want to use the lime on alfalfa, corn, grass, etc. On the basis of value in crops which lime should I use, and why?"

An answer is given by H. J. Wheeler, of the Rhode Island experiment station, as follows:

It is impossible to advise satisfactorily whether ground unburned limestone or burned lump lime should be purchased, without knowing more concerning the character of the soil, and particularly whether prices mentioned are f. o. b. or delivered. It is also important to know the distance from the railway station to the point where the lime is to be used. If the soil is light, sand or gravel, or a light, sandy, or gravelly loam, and especially if inclined to become very dry, the finely ground unburned limestone would be safer, particularly for corn and grass, than the freshly slaked burned lump lime. There would be less risk using the latter, however, for the alfalfa, than for the other crops. One should insist that ground limestone shall all pass a sieve containing 50 meshes to the linear inch, and should not accept anything coarser.

If, on the contrary, the soil is a heavy clay, or silt loam, and contains a considerable amount of vegetable matter, the slaked burned lime can be used with safety, if care is taken to apply it from ten days to two weeks in advance of the time of planting, unless the soil is one which becomes most unusually dry early in the season.

If the prices given are for lime delivered at a point near where it is to be applied, and the burned lump lime contains 96 per cent of actual lime, it would be better economy to buy the burned lime, provided the soil is one on which it could be safely used, since the finely ground limestone would probably not contain more than about 55 per cent of actual lime. The reaction of the soil as shown by the litmus paper is such as to indicate that lime is needed, if the test was properly made. My suggestion would be that the inquirer place a rounded teaspoonful of soil in two-thirds of glass of water, and add one or two teaspoonfuls of dilute ammonia water. He should then stir up the whole mass and allow it to stand for some hours. If the liquid at the top shows a very dark chocolate or black color, this is an indication of a lack of carbonate of lime or carbonate of magnesia in the soil, and will support the test with the litmus paper.

To this the *Rural New Yorker* adds a short essay on the chemistry of lime as follows:

A pure limestone or carbonate of lime contains 56 parts of lime combined with 44 parts of carbonic acid. When burned or roasted in the limekiln the 44 parts of carbonic acid are driven off by the heat and the 56 parts of lime are left. This is called "stone lime," or "quicklime." Limestone is seldom pure, there usually being magnesia or other minerals present. The proportion of lime to carbonic acid is constant, and thorough burning leaves the lime and other minerals together. This "quick" lime or lump lime is "slaked" by taking up water, which it does in definite quantity. Thus 56 pounds of quicklime will take 18 pounds of water and make 74 pounds of dry slaked lime. Thus 100 pounds of pure limestone or carbonate of lime when fully burned would yield 56 pounds of quicklime which will make 74 pounds of slaked lime. The burned lime is finer and more quick in its action than the ground limestone (unburned). All these points should be considered in purchasing agricultural lime.

Model Lime Plant in Missouri.

STE. GENEVIEVE, Mo., Jan. 17.—An interesting place to visit, especially to those engaged in the building material or the construction industries, is the plant of the Western Lime Works. At this plant is manufactured what is known as "oolitic white lime," which is said to be the highest grade of white finishing lime made anywhere in the United States. It is a lime of most exceptional purity, perfectly white and beautiful in appearance. It is a high-grade calcium lime containing 99 per cent oxide of calcium and its freedom from silica is remarkable. It is used extensively for fine finishing work in plastering, sugar refineries and sand-lime brick plants. It is so free from impurities and so high in calcium that nothing has been found by those who have used it constantly to fill its place. The demand for the product extends from New Orleans to Minnesota and from Indiana to Wyoming.



STORAGE SHED OF WESTERN LIME WORKS AT STE. GENEVIEVE, MO.

Two furnace kilns, double lime draw, 40 feet in height, and 6 feet in diameter, are used. These are operated under natural draft and fired with wood and coal in about equal quantities. Each kiln yields about 175 barrels per day of twenty-four hours. The

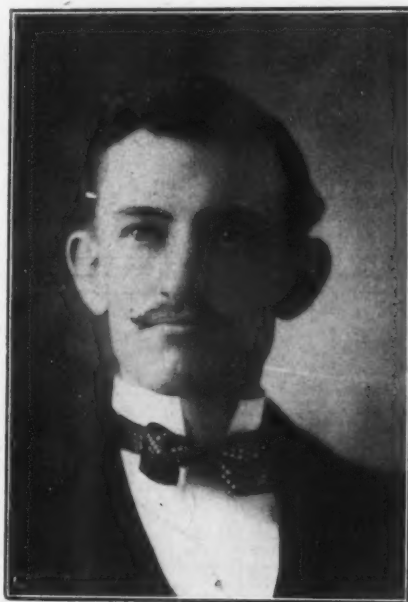
stone into the kilns and lowering the boxes to the ground.

The company does its own cooperage, having a shop in which eight men are employed. The stock used in making the barrels comes principally from southern Missouri and Arkansas.

The quarry is a solid ledge of absolutely pure white oolitic stone 50 feet in height, covering some 100 acres of territory which is overlaid by a deposit of clay ranging from one to eight feet in thickness, which is easily removed by washing. No. 2 Rand steam drills are used in drilling holes through this deposit and black powder is employed almost exclusively for blasting it out. Dynamite is used only to a limited extent, owing to the fact that this stone is of a very soft composition and easily shattered into small fragments.

This institution was established in 1904, and incorporated under the laws of Missouri, with a capital of \$50,000. The owners are John Tlapak, St. Mary, Mo.; Henry L. Rozier, Ste. Genevieve, Mo., and Jules Petrequin, Ste. Genevieve, Mo. The latter gentleman is the secretary and general manager of the company, and it is under his watchful care and good business judgment that the big trade has been built up. Speaking of trade conditions, Mr. Petrequin said:

"Our business during the past two years, in the face of the stringent condition of the country, has been fairly good and we are looking forward for a tremendous trade during the year 1910."



PETER PETREQUIN, SECRETARY AND GENERAL MANAGER WESTERN LIME WORKS.

charging of the kilns is done by means of a large derrick operated by a Mundy double drum hoist, and the arrangement is so perfect that the man at the lever in the engine room operates the entire apparatus alone, hoisting the boxes, swinging the boom, dumping

Annual Election Vermont Lime Co.

SPRINGFIELD, MASS., Jan. 17.—At the annual meeting of the Vermont Lime Co. F. H. Brown was elected treasurer, and these directors were chosen: W. L. Phelps, H. S. Brown, Rollin Bassett, Frank Gerald of Turners Falls and F. H. Brown. The directors were reduced from nine to five. W. L. Phelps was elected president and Rollin Bassett vice-president. The general management of the business was left with F. H. Brown and George W. Plumb, assistant manager, is in charge of the plant at Sherman.

First Shipment of Lime Nitrogen.

NIAGARA FALLS, N. Y., Jan. 18.—The first shipment of calcium cyanamid or lime nitrogen on the American continent was made from the plant of the American Cyanamid Co. in this city on December 14, when 26 tons in 300 bags was consigned to Baltimore. The company, which has \$500,000 invested in the plant, expects to enlarge the plant to an annual capacity of 40,000 tons. It will sell directly to the fertilizer makers, to be used by them in the manufacture of fertilizers. About 300 pounds of cyanamid will be used to the ton of fertilizer.

The entire output of the plant will be consigned to the Baltimore office.

Steam Turbine for Security Plant.

HAGERSTOWN, MD., Jan. 17.—The Security Cement & Lime Co. is one of the first companies in this section to install a low pressure steam turbine. It has just placed an order with the Allis-Chalmers Co. for a 750 k.-w., 3,600 r. p. m., 60-cycle, 3-phase, 480-volt machine of this character.



PLANT OF WESTERN LIME WORKS AT STE. GENEVIEVE, MO.

QUARRIES

Program of Ohio Stone Club.

COLUMBUS, O., Jan. 18.—President Patterson and Secretary Loy, of the Ohio State Stone Club, have issued the following program for the annual meeting of that organization, which will be held at the Southern hotel, Columbus, on January 28-29:

Friday, January 28, 9:30 A. M.

Address of welcome on behalf of the city of Columbus, George S. Marshall, mayor.
Response by President Allen Patterson.
Roll call of members.
Reading the minutes of the previous meeting.
Report of the secretary and treasurer, W. H. Loy.
Report of Executive Committee, C. L. Ireland.

AFTERNOON SESSION, 1:30 P. M.

Advantages and disadvantages of universal specifications, by James C. Wanders, state highway commissioner.
Response, S. M. Hall, Bucyrus.
Shall the producers of Ohio adopt a rigid policy relative to a refusal to prepay freight? by George Christian, Marlon.

Difference in value of crushed stone in various sizes where separation is exacted, by Walter Weldon, of the France Co.

Response, C. W. Ryan.
How to handle car service and freight rates, Lawson Moore, Springfield.

Response, Morris Goetschius, Ottawa.
How can stone producers and contractors get an equitable and competent supervision and inspection of road materials and road construction? George Mercer, Bowling Green.

Response, C. R. Callahan.

Saturday, January 29, 9 A. M.

New material for the use of good roads, O. E. Rankin, of Standard Oil Co.

Shall we ask for legislation requiring contractor's bond, covering labor and material? C. L. Ireland, Van Wert.

Response, George W. Woodruff, Columbus.

Election of officers.

AFTERNOON SESSION, 1:30 P. M.

The advantages of waterbound macadam, Daniel Selts, assistant highway commissioner.

Economy in the use of blasting material, representatives of Dupont Powder Co., Burton Powder Co., Aetna Powder Co., Hercules Powder Co., Dynalite Powder Co.
Machinery and supplies, C. A. Burgess, Cleveland.

INDIANA'S BIG PLANTS.

Three Modern Outfits are Being Operated By the A. & C. Stone & Lime Co.

No state perhaps has greater or better mineral resources than Indiana, located at the exact center of population of the country, and consequently ranking among the most important states in the matter of railroad improvement and good roads requirements.

The first great movement to provide this country with improved highways, dating back as early as 1837, included a stretch of road entirely across Indiana, from Richmond to Vincennes and thence to St. Louis, the terminus of that branch of the old National Road. At that time the rock crushing operation was conducted almost exclusively by means of the pink hammer in the hand of petty felons, convicted and condemned to useful servitude on the public rock piles. All of this is in marked contrast to the ponderous crushing machines of the present day, driven by the largest compounded engines.

Indianapolis, the capital of the state, is the greatest center of electric traction lines in the world, and a railroad center larger than any other inland city; in fact there is no path to the capital of Indiana, where the head offices of the A. & C. Stone and Lime Company are located, without running over ballasted tracts or macadamized roads, and there are no better examples of either to be found anywhere. In the parks and boulevards of Indianapolis there are many very fine examples of good roads made in the highest modern specifications, and this applies, too, to a very large percent of the streets of the city.

Naturally at the beginning of the business railroad contractors located numbers of rock crushing plants in Indiana to supply their enormous ballast requirements. When the rock crushing business grew into an independent industry from the beginning thus made as an indispensable tributary of the railroad contractors, Indiana naturally developed some important rock-crushing plants.

Among these perhaps there are none so important and certainly none better equipped for the handling of large quantities of crushed rock in all merchantable sizes than the three mammoth establishments of the A. & C. Stone and Lime Company, the general

offices of which are on North Pennsylvania street, Indianapolis. The company has three big plants—one at Portland, Ind., another at Ridgeville, and the third at Greencastle. Each of these plants has been located particularly with reference to an inexhaustible supply of lime rock of the best quality for road building, street work, concrete uses, ballast and flux stone.

Quarries Tried Out.

The company was formed a number of years ago, taking over quarries that had already been well tried out, where the ledges of rock were known to contain the right kind of material with beds making it suitable for economical quarries.

Equipment comprises eight crushers, steam shovels and quarry engines, and all the connecting mechanical devices, separating screens and storage bins, which the best rock-crushing engineering of modern development can suggest.

With the opening of the coming spring work three additional crushers of large size and two more steam shovels will be added. The total capacity of the three plants has been no less than 4,000 tons per day, and with the new equipment this will be increased to at least 6,000 tons.

The plant located at Portland has recently furnished the crushed rock for the ballasting of the Portland and Muncie traction line. The Greencastle plant furnished all of the ballast for the Indianapolis and Terre Haute traction line. The Ridgeville plant has lately been furnishing very large quantities of ballast to the branch of the Pennsylvania line that passes through Ridgeville.



STREET SCENE IN RICHMOND, IND., TOPPED WITH SCREENINGS FROM THE A. & C. STONE & LIME CO.'S PLANT.

This company was among the pioneers in the intelligent development of the rock-crushing business. As soon as they were available they installed revolving screens for separating the various sizes of the product of the crusher in a uniform way and maintaining such separations so that crushed rock of a known and uniform size could be delivered according to the specifications of the engineer in charge of construction work.

In Niagara Formation.

The rock quarried at Portland and Ridgeville is of the Dolomitic type in what is known as the Niagara formation of lime stone. It is particularly adapted to road building by reason of its inherent cementitious characteristics. A large percentage of the famous good roads of eastern Indiana have been made of macadam composed of this type of rocks.

In connection with the rock-crushing plant at Portland there is an extensive lime manufacturing plant in which the lime is burned by a very high type of fuel, natural gas and oil. The lime is a very spongy magnesian kind, a great favorite with paper manufacturers, plasterers and the masonry trade. It has been found, according to the testimony of a large numbers of users, to be just about the correct material for modern requirements. It never gets very hot and is never too cool to delay the putting process, but it is that happy medium which many users of lime have only been able to secure by mixing together a hot and a cool lime.

Analysis of Portland White Lime.

All the rock from which A. & C. lime is burned is especially selected with great care, and a burning process is superintended with vigilance to secure and maintain the correct calcining heat. The accompanying analysis shows practically the exact proportions of the highest type of Dolomite lime:

	Per cent.
Calcium Oxide.....	60.08
Magnesium oxide.....	38.62
Silica	0.50
Iron oxide and alumina.....	.80

Analysis of Greencastle Quarry Stone.

The rock in the Greencastle quarry is of the high calcium limestone, closely akin to that which has been classified as Mitchell limestone. Aside from its ballast, road-making and concrete aggregate qualifications, it is one of the best fluxing stones yet discovered, as will be shown by the analysis following:

Carbonate of lime.....	98.66
Magnesia	0.13
Oxide of iron.....	0.51
Silica	0.66

All of these plants are very favorably located with regard to transportation facilities, which is quite as important to the success of rock-crushing operations as is the deposit of rock itself. By the accompanying illustrations these facilities are distinctly shown in connection with a picture of each plant. A sample street in Richmond, Ind., is also shown on this page.

The officers of the company are: J. C. Armfield, president; Charles F. Meyer, vice-president, and A. B. Meyer, secretary and treasurer. Managers of their plants are: E. B. Taylor, Greencastle plant; W. A. Nichols, Ridgeville plant, and C. E. Leavy, Portland plant.

Big Operations in West Virginia.

MARTINSBURG, W. VA., Jan. 17.—Employing about 300 men and expending more than \$100,000 in the

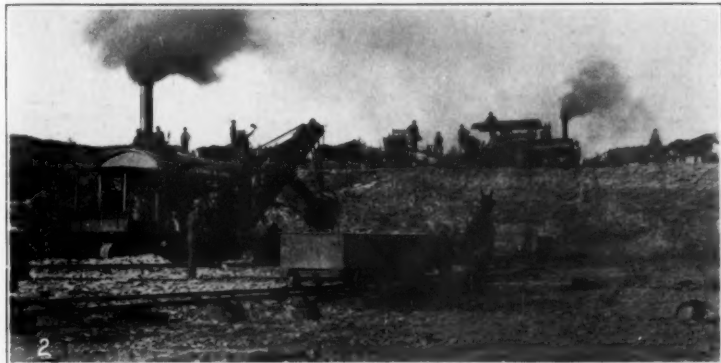
preliminary development of its great plant two miles from Martinsburg, the Blair Limestone Co., a subsidiary of the Jones & Laughlin Steel Co., of Pittsburgh, has begun active operations with the shipment of several hundred tons of limestone to Pittsburgh, marking the opening of what promises to be one of the richest limestone and cement-shale plants in this section of the United States. Officials of the company state that the present force of 300 men will be increased to probably 1,500 during the next few months, and that the plant will be operated upon a gigantic scale.

Equipment for New York Co.

NEW YORK, Jan. 19.—The Tomkins Cove Stone Co., of New York, which operates a large stone crushing plant at Tomkins Cove, on the Hudson river, just below West Point, is making extensive additions and improvements to its plant. When these are completed it will be one of the most modern stone crushing plants in the country. The power equipment will consist of one 22 and 44x42 heavy duty, cross compound condensing engine, running at 100 r. p. m. under 150 lbs. gauge initial steam pressure and 26-inch vacuum. The engine will be provided with drag crank and extended shaft for direct coupling to the main jackshaft driving crushing rolls. The frames, journals, shaft, cranks and pins will be of extra heavy design on account of the very severe service. An 18 and 36x36 heavy duty, cross compound condensing engine running 107 r. p. m. and having the same steam pressure and vacuum as the other, will be directly connected to a 500 k. v. a. generator, which will furnish current for lighting and driving motors. Twelve 25-cycle, 550-volt, 3-phase induction motors, ranging in size from 10 to 150 h. p., will be used for driving machines in various parts of the plant.



A. & C. Stone & Lime Co.'s Plant, Greencastle, Ind., Located on Vandalia Railway, Connecting with Chicago, Indianapolis & Louisville and the C. C. & St. L. Railways.



A. & C. Stone & Lime Co.'s Plant, Portland, Ind., Located on G. R. & I. and L. E. & W. Railroads.



A. & C. Stone & Lime Co.'s Plant, Ridgeville, Ind., Located on the G. R. & I. and P. C. C. & St. L. Railways.

1—Greencastle Plant of the A. & C. Stone & Lime Co. 2—Quarry Scene at the Greencastle Plant. 3—Quarry Locomotive at Greencastle Plant. 4—Portland Plant of the A. & C. Stone & Lime Co. 5—Quarry Scene at Ridgeville Plant. 6—Quarry Scene at Portland Plant. 7—Ridgeville Plant of the A. & C. Stone & Lime Co.

New Method of Handling Stone.

QUINCY, MASS., Jan. 15.—For the Tide Water Broken Stone Co. the Dodge Manufacturing Co. has installed a conveyor and elevator equipment which has proved a good investment as a system for handling crushed stone under peculiar conditions.

The stone plant is located at tidewater, where a long stretch of grass-grown flats—dry at low tide and flooded at high tide—must be crossed in reaching the navigable water. The equipment includes not only the conveyor across the tide flats, but also the elevating and conveying machinery for handling the stone to and from the plant, and for unloading it from the scows in making deliveries to purchasers.

Rock is brought to the plant in cars, which dump it into the boot of the bucket elevator leading to the top of the crusher house. From the crushers four conveyors carry the stone of various grades to four storage hoppers, from any one of which it may be loaded onto the long belt for transportation to the water front.

The main conveyor is 338 feet long, running on a level for about 210 feet, and then ascending an incline to reach a height 20 feet above the level portion. This elevation enables the conveyor to discharge directly into the highest boat at flood tide. The belt is 16 inches wide and is carried on standard self-oiling roll stands. The upper or load run is troughed to increase its carrying capacity and prevent spilling. Side rolls at suitable intervals keep the belt in line. The return run of the belt is underneath, carried flat on straight rolls. The conveyor as a whole is supported above high tide on suitable piling and cross beams.

The Possibilities of Portland Cement as a Road Material.

BY LOGAN WALLER PAGE.

(Chief of the Bureau of Roadways, Washington, D. C.)

*Lime-cement concrete is the oldest road material that we have any record of. The Roman roads, which were of this type of construction, are the only ones which have endured for any great length of time. The Appian Way, which is undoubtedly the best type of Roman road, was begun by Appius Claudius 312 years B. C. and parts of it are in a remarkable good state of preservation today. We know perfectly well that any of our modern Portland cements are far superior in strength and durability to the lime mortar used by the Romans, and yet I have never seen a road built of Portland cement concrete that I considered altogether a success. There are two characteristics of Portland cement concrete which in my opinion bring about the failure of roads constructed of it. They are, first the tendency of concrete, when exposed as in a road surface, to develop shrinkage cracks. These cracks are generally parallel to the road and increase in size as time goes on. The second characteristic which brings about failure is the ease with which concrete spalls along the margins of cracks. I have never seen a concrete road fall through what I thought was due to expansion, but it is the general practice to place expansion joints at right angles to the line of concrete roads at frequent intervals, and the road suffers much from spalling at these joints.

It is perfectly apparent to any one who has made a study of the subject, that there could be no better form of road construction, at so low a cost, to meet only automobile traffic conditions than a cement macadam road. The most durable type of rock could be used as an aggregate, which would give maximum life to the road, and it would be practically dustless. So apparent is this, that in the endeavor to use Portland cement in road construction much ingenuity and refinement has been resorted to, but with the exception of a few isolated cases, real success has not been attained.

It might be appropriately asked, Why have the Roman roads stood varying traffic conditions for so many centuries? I believe that a consideration of this point might be helpful in meeting our present conditions.

Unsuited to Present Use.

In the construction of Roman roads of the best type, a trench about 3 feet deep was excavated the entire width of the road, and wherever poor material was present it was removed and replaced by suitable material, and the whole subgrade was thoroughly compacted by ramming. Generally four distinct layers were placed in these roads. The bottom course, or statumen, was composed of two courses of stones placed in lime mortar. On top of this was placed the rudus, or rubble, which consisted either of broken stone or, when available, broken bricks, potsherds, etc. When the latter composed the aggregate, more lime was used in the proportion of 2 to 5. This course was very thoroughly rammed, and was usually about 9 inches thick. The third course, or nucleus, was composed of old building material such as brickbats, broken tiles, etc., mixed with lime in proportion of 1 to 3. This course was not rammed and the lime was mixed hot. Above this course came the top or wearing surface called the summan crustum, which was made of blocks of flat stone set in mortar and fitted together with great refinement. It can be seen that the third layer, or nucleus, was much softer than any of the others, and was placed purposely below the top layer which was designed to take the wear of the traffic.

This type of road was undoubtedly the result of much experience. There are four distinct features which I consider worthy of the fullest consideration. First, an absolutely secure foundation was always obtained; second, a resilient or cushion layer was placed just beneath

the wearing surface; third, the four layers composing the road had different coefficients of expansion which would probably preclude the development of definite lines of stress brought about by contraction; fourth, the exposed or wearing surface was composed of a material which would not only withstand the wear of traffic, but atmospheric conditions as well.

We frequently hear the statement that the Roman method of road building is a lost art, and that we cannot build roads today of a similar character. This is altogether a mistake. We could not only build similar roads, but roads which under the same conditions would be more durable. A road of the Roman type under modern city traffic conditions would last only a few years, and would probably cost \$250,000 a mile to build. The traffic they were subjected to consisted of light vehicles and unshod horses, and the fact that unshod horses were used leads one to believe that an earth cushion was probably maintained on the surface of these roads, as otherwise a horse would go lame after 50 or 60 miles of travel. The portions of Roman roads that we find intact today are those which have either been subjected to very light traffic or have been completely covered up with earth for long periods of time. In most cases we find only portions of the foundations.

Our Best Modern Roads.

The nearest approach we have to the Roman road today is the best type of paving brick, laid on a concrete foundation with a 2" sand cushion, and this type of road suits automobile traffic admirably, but it is very hard on the feet of horses. As far as I have observed the concrete foundations both for brick pavements and asphalt streets rarely crack except from faulty foundations. The contraction cracks, therefore, I believe are due to no fault in the cement, but to the great range of temperature to which the road surface is subjected, and the fact that it is generally laid during the warmest season of the year, when expansion is greatest. This view is further upheld when one considers that concrete floors and pavements laid on earth foundations inside of buildings rarely crack.

Whether this view of the matter is correct or not, we know that concrete roads at present are not satisfactory, and our next consideration is whether they can be made so. Concrete has been almost universally adopted as a foundation for almost all types of heavy traffic pavements. It gives perfect satisfaction when protected from direct exposure, and whether methods of construction, or treatment, can be devised by which concrete can be used as a wearing surface for roads is a matter for investigation.

It is my belief that in most concrete roads the concrete is too uniformly mixed and too homogeneous in composition. This may account, in a measure, for the development of shrinkage cracks, where the surface is exposed to a great range of temperature. Concrete is also too unyielding to the blows of traffic and too brittle, both of which characteristics facilitate spalling. It seems to me that a pavement can be made which, to some extent, will obviate these undesirable characteristics, and I would suggest the following general specifications:

About six inches of number one broken stone mixed with the screenings below one-half inch, thoroughly rolled with a steam roller as a foundation course. On top of this, spread a uniform layer about one inch in thickness of rather dry cement sand mortar. Over this course of mortar at once spread about three inches of number two stone, which should immediately be rolled with a steam roller until the cement sand mortar rises flush with the surface. Such a road as this, I believe, would have many advantages. It could be opened to traffic within a short time after completion; it would not be as rigid as an ordinarily mixed concrete road. I do not believe it would be as likely to crack as ordinary concrete, as the stones forming the aggregate would rest firmly upon each other, receiving the blows of traffic, and the cement mortar only acting as a binding matrix. Further than this, there would be a minimum amount of cement used, and no two horizontal sections of such a road would have the same coefficient of expansion. Rock of the very highest resistance to wear could be used without any consideration of its natural binding power, which is so important in the ordinary macadam road. Another most important feature of this type of construction would be the absence of dust on the surface, a result which is so much sought after by highway engineers at the present time. It would also give an excellent surface, not too slippery or too noisy. Most important of all, however, such a road would not cost more than 10 or 15 cents per square yard more than ordinary macadam, which is about the annual cost of spreading bituminous dust preventatives.

Experiments With Oil Mixture.

I have mentioned this type of construction as a possible cheap method of using concrete in road building. Another way of approaching the problem is to so treat Portland cement so that its brittleness will be reduced and its resilience increased. This, I believe, would be of great advantage, even if in so doing the tensile strength was greatly lessened. It can be seen that a material like asphalt, which meets so successfully the wear of traffic, is of a semi-plastic nature, with very low tensile strength and no elastic limit. Alone, a slight blow will permanently deform it. Its adhesiveness to mineral matter, however, permits it being tempered by a mineral aggregate to the desired consistency. It is also known that the addition of Portland cement to asphalt surface mixtures is very desirable. With these points in view, the Office of Public Roads has begun an investigation to ascertain the practicability of mixing semi-asphaltic base oils with Portland cement concrete, with the object of obtaining the desirable properties of both the cement and asphalt. Up to the present time our results have been somewhat encouraging. We have succeeded in making mixtures of as high as 20 per cent of oil, and both the 7 and 28-day tests for toughness and tensile strength showed a regular increase. Briquettes with 5 per cent additions of oil broke in tensions at 230 pounds after 7 days in soak, and 296 pounds after 28 days; with 10 per cent oil 228 pounds after 28 days; with 15 per cent, 246 pounds; and with 20 per cent 263 pounds. The results obtained under impact were practically parallel with those under tension. Increased proportions of oil retarded both the initial and final set in increasing amounts; the tensile strength and toughness were also reduced, but not in like proportions. It has been shown that concrete immersed or mixed with animal or vegetable oils disintegrates and, of course, this may be the case with petroleum. It is my intention to continue this investigation until the several points under consideration have definitely been settled. I might mention further that parallel tests were made from tar and zeferent, but the results were practically all negative.



Meeting of the Wisconsin Association.

MILWAUKEE, WIS., Jan. 20.—The Wisconsin Clay Manufacturers Association will hold its tenth annual convention at the St. Charles hotel in this city February 23-25. A large attendance is expected, as an unusually interesting program has been arranged. Prof. A. V. Bleining, of the clay testing laboratories of the U. S. Geological Survey, will give illustrated lectures and demonstrations with clays and clay products. The preparation of clays, the burning of brick and tile, railroad rates, fire insurance, publicity and the benefits of association work will be among the subjects discussed.

Get Fair Rate on Fire Brick.

Fire brick men all over the country are much pleased with the decision of the Interstate Commerce Commission whereby the railroad rate on fire brick is to be the same as that on paving brick. The railroads have heretofore exacted a higher rate on fire brick, although the cost of the haul was no greater, the word "fire" apparently being a red flag. C. B. Stowe, of the Stowe-Fuller Co., Cleveland, says regarding the decision:

"This puts all brick on the same basis, as the cost of the haul is the same. The principle is one which we have fought for for the last four years."

This victory was won as the result of a case brought in September, 1906, by the Stowe-Fuller Co., the Olive Hill Fire Brick Co., National Fire Brick Co., Minor Fire Brick Co., Davis Fire Brick Co., Ohio Fire Brick Co., Kentucky Fire Brick Co., Ashland Fire Brick Co., Tigert Fire Brick Co., Niles Fire Brick Co., and Chas. Taylor Son's Co.

The new rate takes effect February 1, 1910.

Alger Clay Co. Branches Out.

DETROIT, MICH., Jan. 20.—The Alger Clay Manufacturing Co. of Alger, O., is preparing to build new lumber sheds. At the south of the lumber sheds the company is building a lime and cement house. The company is thoroughly convinced of the importance of having all its merchandise under cover. In connection with the lumber business this concern operates a very large drain tile factory, which at present is running at its full capacity, getting ready for the spring trade.

Sale of Fort Smith Brick Plant.

FORT SMITH, ARK., Jan. 15.—The sale of the plant of the Fort Smith Vitrified Brick Co. means growth; a larger capacity and increased employment and output. A. C. Stich, banker and capitalist, of Independence, Kan., and C. P. Dick, of Cherryvale, Kan., both representatives of the Coffeyville Brick Co., arrived in Fort Smith Monday, and the plant of the Fort Smith Vitrified Brick Co. was turned over to them in pursuance of a sale which had been negotiated previously by Mr. Brown, who had acquired the interest of A. J. Yoke.

Mr. Stich stated that the capacity of the plant will be immediately doubled. This means new equipment, new machinery and drying tunnels and kilns; it also means the employment of more men.

Urges Tile Men to Advertise.

DES MOINES, IA., Jan. 18.—One of the speakers at the convention of brick and tile makers in this city was C. W. Lansing, of Chicago, who urged more publicity on the part of the makers of these products.

"No man can make selling effort successful if he goes at it in a haphazard sort of way," he said. "In these days of competition no man can expect business to come to him without effort. Spasmodic effort is not profitable. It is better to go after a small list of prospects with persistence than to try to reach a large list by jumps. Let the prospect know you want his business and that you mean to get it."

Other speakers were J. A. Wilson, of Dows, Ia., whose subject was: "Difficulties Encountered in a Medium Capacity Plant, and Their Practical Solution."

G. C. F. Vater, Dayton, O., on "The Youngren Continuous Kiln Gas Producer." Prof. S. W. Byer and M. C. Furham, of Des Moines, also made addresses.

* Delivered at the annual meeting of the Association of Portland Cement Manufacturers, held in New York, December 13-14-15.

CEMENT

The Cement Situation.

The cement manufacturer is the only manufacturer of any material used for any purpose in the United States which has shown any decrease in price within the last ten years. It is rather strange, in view of the fact that everything else has gone up, that cement has gone down, and yet there are many reasons—the old story of supplying the demand.

Years ago, when cement first came into general use and there was not enough to go around, the prices were always high. With the advent of the trade newspaper, who showed a multitude of ways and manifold uses to which cement could be put, the increase in the consumption of cement became so rapid that it encouraged investors to go into the business with scarcely any knowledge of the game, and as a consequence, the last year has seen the cement market glutted, and has caused the price to become lower than at any time since cement was manufactured in this country.

Some of the largest manufacturers say they have not made any money, but that they feel that the situation is not so grave as it might appear on the surface, for the public has been educated to use cement in ways that were never before dreamed of, and there are still a great number of methods for the utilization of cement yet to come.

Despite the fact that high prices are being paid for every commodity, money is apparently no more plentiful than it was a few years ago, but still the conditions are better than a year ago, and are constantly on the improve.

The investing public is naturally turning to something permanent, and when this great building flood reaches its high tide, it will carry cement along with it and the prices will naturally go up, not so high probably as it was a few years ago, but still high enough to make all of the manufacturers a fair profit.

The largest manufacturers are sitting in the boat and are doing their best to keep the small ones from rocking it. This is about the situation as it looks today.

Hardly any of the manufacturers but what will tell you that they have plenty of orders on hand for spring delivery, and that they see nothing but a big business ahead, and that as soon as the excess of cement is used up, the prices will, of necessity, take an upward turn. Some predict this will happen sooner than others, but all are of the opinion that it will not be long before conditions have reached what might be called a nominal basis.

New Type of Cement Storage.

The Macdonald Engineering Co., of Chicago, is erecting for the Dewey Portland Cement Co., at Dewey, Okla., a cement storage plant which is a unique departure from the usual method of storing bulk cement.

The plant will consist of four reinforced concrete cylinders 30' in diameter and 80' high. The interspaces between the four cylinders will be used as a separate bin and a series of four smaller rectangular sacking bins will be built on the outside diameter of the cluster. Altogether there will be ten independent storage bins, giving a total capacity of about 75,000 barrels. A special sacking compartment with warehouse and shipping room crossing the shipping tracks will also be built, using reinforced concrete for the entire structure.

The foundation will be pierced by two conveyor tunnels, through which a screw conveyor system will be installed for drawing the cement from the bottom of the storage. On the roof of the tanks, a cupola, or "texas," will extend the full length, which will contain a screw conveyor for distributing the cement to the bins. At the discharge end of each basement conveyor in the lower tunnel, a steel elevator leg will be erected for the elevation of the cement to the upper conveyor and to the sacking bins. Conveyor connection will be made with the warehouse to the present plant so that all cement coming from the mill will be passed direct to the new storage.

When the contract was taken the Macdonald Co. was assured that cold weather was unknown in Oklahoma, and with this understanding, completion was promised by the middle of January. "Instead of this," said a member of the firm, "we have encountered just as severe weather in Oklahoma as we have had in Chicago and as a consequence are behind on the job. It will be completed about the middle of February, unless we have another hard freezing snap."

Will Make Cement in Nebraska.

OMAHA, NEB., Jan. 18.—A new industry, the Nebraska Portland Cement Co., is to make its headquarters in Omaha. The manufacturing plant will be established at Superior, Nuckolls county, a railway center for southern Nebraska and northern Kansas.

The Nebraska Portland Cement Co. has laid plans for an extensive development. It is a Nebraska corporation with an authorized capital stock of \$1,200,000. There will also be a bond issue of \$800,000. Both bonds and common stock are to be fully paid and nonassessable. The bonds are to be first mortgage securities drawing 7 per cent, secured by the entire holdings of the company, including real estate, building and machinery.

The Nebraska company's plant at Superior will be the only one of the kind in the state. The production of the cement plants of the West is not considered adequate to meet the demand for this now all-important building material. The Superior plant will have an ultimate capacity of 2,500 barrels of cement a day. It will employ about 250 men.

It has been announced by the officers of the company that the fuel question has been settled with a decision for the use of crude oil. The oil fields of Kansas are readily accessible, and it is probable that a pipe line service will be established.

The new company has extensive holdings and a plant at Milford, Kan., in the heart of the cement and limestone deposits of the Republican river valley. At Superior the company owns 337 acres of rich beds of cement materials.

C. McLaughlin, president of the company, will locate at Superior, where he may be in touch with the plant. Captain C. E. Adams, vice president and treasurer, and H. G. Calkins, secretary and general manager, will establish themselves in Omaha. The members of the executive committee of the official staff of the company are C. McLaughlin, H. C. Calkins and C. E. Adams.

Stubbs & Stubbs of Kansas City, Mo., have been retained as general counsel for the new company. The First National bank of Omaha has been chosen as the depository. The First Trust Co. has been organized for the purpose of holding the securities of the company. The testing laboratories of the company are located in Kansas City.

New Cement Plant in Arkansas.

TOPEKA, KAN., Jan. 18.—A charter has been granted to a \$750,000 company which will establish a plant at Arkansas City, Ark., where it will manufacture Portland cement. The incorporators are capitalists from Joplin and Arkansas City, who have invested in the enterprise because of the cheap fuel assured by the numerous gas wells at Arkansas City.

Cement Industry in South Africa.

U. S. Consul Edwin H. Gunsaulus, at Johannesburg, South Africa, describes in the following manner the founding and building up of a cement factory in that country:

One of the most successful of the new industries established in the Transvaal is the Pretoria Portland Cement Works near Pretoria, where the daily production is about 60 tons of cement, said to be equal to the best imported article. Years before the war steps were taken by the Boer government to encourage the manufacture of cement, because of the large quantities imported for mine construction and other purposes. A subsidy of \$5 per cask for every lot of Portland cement manufactured locally was granted, but owing to the inferior quality of the local product in the beginning, the interruption occasioned by the war, and other difficulties subsequently encountered in the matter of securing the proper proportions of ingredients to insure a good product, the industry languished and was on the verge of dissolution when the present manager, E. Davidson, was brought here from Cleveland, Ohio, some five years ago to assume charge of the plant.

Under Mr. Davidson's management the factory was rebuilt, new machinery installed, and the works restarted

along strictly scientific lines. Within the last year all difficulties in the way of turning out a first-class product have been overcome and the demand has been much greater than the supply. To meet the present and future demand the plant is being greatly enlarged, and when the improvements now under way are completed the output will be equal to 30,000 barrels per month, with power to materially increase this supply if necessary.

The monthly consumption of Portland cement in the Transvaal is now nearly 30,000 casks, and of this amount nearly one-half is supplied by the Pretoria works, the balance being imported. The new method of building by the employment of reinforced concrete is bound to bring about a greatly increased demand for cement, and it is now predicted that next year the Rand alone will consume nearly 500,000 casks of this product.

At present the duty on imported cement is 1 shilling (24 cents) per cask (400 pounds) from Great Britain and 1 shilling 3 pence (30 cents) from other countries. The local product sells for 3 shillings (73 cents) less per cask than the best imported article. At present the Pretoria works can not meet the prices of the foreign product at the coast points of South Africa on account of the high railway rates. This may, however, be overcome in time.

In connection with the construction and rehabilitation of the Pretoria cement plant it is of interest to note that practically all of the machinery employed is of American design and manufacture. With the exception of two ball mills imported from Germany, all of the burning and grinding machines were imported from the United States, as well as the engines and electrical machinery.

Big Deal By Alpha Co.

SOUTH BETHLEHEM, PA., Jan. 17.—The Alpha Portland Cement Co. has declared a property dividend giving one share of stock in a corporation to be known as the Cement Manufacturing Co. for each share held in the Alpha Portland Co. The Cement Manufacturing Co. has taken over certain new cement and other properties which have been acquired by the Alpha Portland Cement Co. in the last year. It is intimated that there will be a merger of these companies.

Under the terms of the agreement of merger, it is said, there will be issued to the stockholders of the two companies stock to the extent of \$10,000,000 pro rata. Of this issue, \$2,000,000 will be 7 percent cumulative preferred stock; the balance common stock.

New Cement Plant in Oregon.

PORTLAND, ORE., Jan. 17.—Through a combination of Portland and Utah capitalists, an entirely new industry is to be added to Oregon's long list of commercial activities within the present year. This industry is the manufacture of Portland cement, and the plant is to be established on the west bank of the Willamette river, at Oswego, eight miles above Portland.

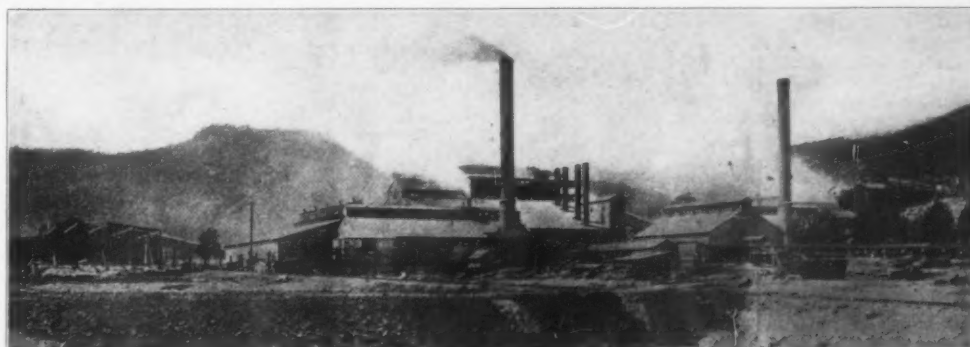
Deeds recently passed to the company for a site of 40 acres, and preparation of the ground for the erection of buildings has been under way for several weeks. The outlay to start this new industry is to be more than \$500,000. When the manufacture of cement is begun the plant will give employment to 150 men throughout the entire year. The capacity will be 1,500 barrels daily.

White Cement For South America.

YORK CITY, PA., Jan. 18.—The Sandusky Portland Cement Co. has made shipments of its white cement to Maracaibo, Brazil, recently, and has also filled big orders from Missouri, Texas and North Carolina.

Cheaper Cement in Spokane.

SPOKANE, WASH., Jan. 17.—New York, Chicago and Spokane capitalists have financed the People's Portland Cement Co., incorporated for \$2,000,000, to erect and operate a 2,000-barrel plant, costing \$500,000, at Squaw bay on Lake Pend Oreille, sixty miles northeast of Spokane. Arthur S. Ford, of New York, and H. A. Groth, of Chicago, announce that contracts will



GENERAL VIEW OF PLANT OF THE DIXIE PORTLAND CEMENT CO., RICHARD CITY, TENN.

be awarded in a few days for a steel and concrete plant with three kilns to be in operation next August, when cement will be laid down in Spokane at \$2 a barrel.

The present cost of cement, of which more than 1,000,000 barrels is used annually in Spokane and the adjoining territory, is from \$2.75 to \$3.50 a barrel, including freight charges, the bulk of the supply coming from Kansas and Canada, the rest from points on the Pacific coast. Cement is higher in Spokane at present, experts say, than in any city in the United States.

Through Mr. Ford the company has acquired 350 acres of limestone lands on Lake Pend Oreille, where ample steam and electric railway and steamboat facilities will be afforded as soon as the plant is in operation. A town will be established near the mill site the coming spring and every building in it will be of concrete construction. The plant and quarry will give employment to 100 men at the beginning.

Payment of Interest Deferred.

NEW YORK, Jan. 20.—Holders of bonds in the Seaboard Cement Co. have received notice that the payment of interest due January 1 has been deferred until May 1.

Security Co. Increases Equipment.

BALTIMORE, Md., Jan. 17.—The Security Cement & Lime Co. has recently bought from Chalmers & Williams, Inc., Chicago, one No. 9 and two No. 6 Kennedy gyratory crushers.

Cement Industry in Canada.

TORONTO, CAN., Jan. 17.—The Canadian cement industry in 1909 numbered twenty-three plants in operation. The total daily capacity of these plants is 26,500 barrels, or an annual output of about 8,270,000 barrels if all of them should run full time throughout the year.

Opening of New Cement Plant.

BRIGHAM CITY, UTAH, Jan. 18.—The burning of the first kiln of cement at the Ogden Portland Cement Co.'s plant, just north of Brigham City, was witnessed by quite a number of persons who were interested in seeing the alkali mud turn out a No. 1 cement.

Universal Co. to Enlarge Works.

HAMMOND, IND., Jan. 20.—An appropriation of \$1,500,000 has been made by the U. S. Steel Co. for the construction of an addition to the plant of the Universal Cement Co. at Buffington, Ind. The addition, which is to be completed this year, will have a capacity of 6,000 barrels of cement daily, and will have a working force of 400 men.

Mammoth Company at Des Moines.

DES MOINES, IA., Jan. 18.—After placing all its stock the Iowa Portland Cement Co. has perfected its permanent organization and announced that the \$1,000,000 plant on South Park avenue will be in full operation by March 1.

The permanent officers elected are:
President—George E. Nicholson, of Iola, Kan.
Vice-president—L. F. Crofoot, of Omaha.
Secretary and treasurer—J. C. Burch, of Des Moines.

Clinkers from the Kansas Mills.

Our Southwestern traveler finds a most optimistic feeling among the cement men of the Kansas mills. New quotations, with a 10-cent per barrel advance, were issued last week. To sum up the general situation one of the prominent manufacturers said:

The year 1910 promises to be one of unusual activity. Progressive, up-to-date cement manufacturers, producing quality, and dealers, protected in handling their products, will undoubtedly enjoy a liberal participation in the benefits—larger profits—growing out of this natural business condition.

That prices must be higher seems inevitable, because the demand for high grade cement will be large; the supply of high grade cement will be restricted by reason of the short and declining natural gas supply throughout the entire Kansas gas field. (There were, on January 1, 1910, one million barrels less cement in manufacturers' bins than on January 1, 1909.)

To make the most money out of cement, therefore, it is our opinion that dealers should: (1) Select the best cement available; (2) fill their warehouses full early; (3) keep them filled from February to November; (4) talk quality; (5) ask more money—more margin; (6) insist upon reasonable protection from the cement manufacturer.

USE OF OIL IN CONCRETE.

BY S. B. NEWBERRY.

(Chairman of Committee on Technical Research, Association of Portland Cement Manufacturers.)

*The two problems lately especially recommended to the attention of our committee are:
The action of oil on concrete.
The effect of varying temperatures on the hardening of concrete.

Before undertaking experimental work on these subjects it was thought necessary to make a careful study of the literature, in order to determine what, if any, experiments or tests were needed. Abstracts of the most important articles on these subjects have been prepared and are attached to this report. In this work the chairman has been especially aided by suggestions from Mr. Brobston and lists of titles furnished by Mr. Schaffer. Up to the present time this is all the committee has been able to accomplish in these fields. At the New York meeting the chairman proposes to present to the committee the following recommendations as to further investigations:

1.—Effect of oil on concrete. Published statements appear to show that lubricating oils have no destructive effect on well-hardened concrete, and there appears to be no need of further laboratory experiments on the soaking of test-pieces in oil, as this line of work has been quite fully carried out by R. C. Carpenter and J. C. Hain. We have found no record of injury to machinery foundations by dripping of lubricating oil. If any members of the association have noticed any injury, or consider it important that this question be pursued further, we shall be glad to undertake such experiments as may be recommended.

The question of the percolation of oil through cement is, however, of practical importance, as cement would doubtless be widely used for storage tanks for petroleum and gasoline if it could be made impervious to oil. The committee has in view some preliminary experiments to determine the possibility of making an oil-proof concrete.

2.—Effect of varying temperatures on the hardening of concrete. This question was referred to our committee in consequence of a letter to the association from the Abertshaw Construction Company of Boston, which pointed out the great need of reliable information on the rate of hardening of concrete at low temperatures, as an aid to builders in determining the time for safe removal of forms and supports. The great importance of this to the art of concrete construction and to the cement industry is of course evident. The difficulties in the way of carrying on experiments which will give results of practical value are very great, as shown by our abstract of the literature of the subject, attached to this report. An editorial article in the Engineering News, December 3, 1908, on "Relation of Temperature to Removal of Concrete Forms" points out the scarcity of information on this question, and gives the following suggestions as to the line which should be followed in further investigations.

As the time of removing forms is dependent on the strength of the concrete, the proper test to make in the investigation proposed is the effect of temperature on strength, either tensile or compressive, in a given time.

For instance, it may be found that a certain concrete at 70 reaches a compressive unit value of 1,500 pounds in 48 hours, a strength deemed sufficient for safe removal of forms. The proper way to determine the time of removal at other temperatures would be to determine by tests the time necessary for the compressive unit strength to reach 1,500 pounds at each of the desired temperatures; or at least, by means of several specimens from the same mix, to determine a strength-time curve from which can be computed the time when a 1,500-pound strength may be expected. It may be found, then, that for mixed conditions of mix and material there can be deduced some relation between strength and temperature which can be used in construction. Such relation need not be rigid, because the large margin of safety allowed in the assumption of the proper unit value will take care of any but most unexpected variations from the deduced rule. It is to be hoped that such tests will be undertaken, for the establishment of some scientific basis for removal of forms will add to the fast growing rational design and construction in concrete.

The Abertshaw Construction Company has itself carried on some experiments on this question. These consisted in exposing briquettes, neat and with 3 parts sand, to air at 72°, 41°, 34° and 7°, the cold tests having been carried out at the Quincy Market Cold Storage Warehouse, Boston. These show that at 28 days the briquettes at 41° and 34° showed better strength than those at 72°, doubtless owing to the more rapid drying out of the latter.

For fair comparison, test pieces at the various temperatures must be kept uniformly moist, either in water or in moist air in a closed box. In addition to neat and sand tests, concrete of average composition, perhaps 1:2:4 and 1:3:6, must also be tested, and this can be done only in compression of cubes of at least 3-inch size.

This work can be carried on only at laboratories provided with compression apparatus and situated near cold storage warehouses at which permission to store test-pieces can be secured. This investigation will be taken up at once by the committee, and an effort made to obtain the assistance of laboratories in the principal cities, such as those of the Abertshaw Company of Boston, the Department of Public Works at Philadelphia, the Hunt Engineering Company of Chicago, and Clifford Richardson of New York.

Other investigations by Committee.

Fineness of Grinding of Cement.—In the hope of finding a method of determining the percentages of extremely fine dust in cements ground in mills of different kinds, a series of experiments by subsidence in benzine have been carried on, after the method suggested by Mr. Meade. These have not given satisfactory results, owing to the very rigid subsidence of even the finest particles, and we have come to the conclusion that no useful separation can be accomplished by this method.

The separation of the finest particles of cement by means of a current of air has been worked out into practical form by Dr. Gary at the Royal Testing Station at Charlottenburg, Germany, and promises to yield results

* Report made at annual meeting of the Association of Portland Cement Manufacturers at New York, December 13-14-15.

of the greatest interest and importance. We have obtained from Germany the latest form of Gary-Lindner apparatus, and expect to report results obtained with it at the next meeting.

Cause of Cement Becoming Quick-Setting on Storage.—The first reasonable explanation of the tendency of cement to become quick-setting on storage was given by Candiot (Ciments et Chaux Hydrauliques). Gypsum is effective in retarding the setting only when a small amount of free lime is present. Freshly ground cements always contain a little free lime which is at once dissolved on mixing with water. On long exposure to air, however, this trace of free lime is gradually converted into carbonate by the carbonic acid of the atmosphere, and is no longer able to assist the gypsum in retarding the set; the cement then becomes quick-setting. To make it again slow-setting, it is sufficient to add one or two per cent of ordinary hydrated lime just before use. Another method recommended by Candiot is to mix the quick-setting cement with slightly damp sand and let it lie 20 to 30 minutes before adding more water for use. This makes it set perfectly slowly, and does no harm whatever to the strength.

On longer storage of cement, the aluminate of lime, which is the cause of the quick-setting, becomes hydrated or carbonated, and the cement therefore becomes, in time, again slow-setting.

We have been able to confirm this explanation of Candiot's by exposing samples of cement to the air and determining, at intervals of a week, the time of setting, the amount of lime dissolved from the cement on mixing 5 grams with 50 c. c. of water, and the carbonic acid contained. A full account of these experiments is attached to this report. A sample of cement spread out one-half inch thick showed initial set, at four successive weeks, of 100 minutes, 14 minutes, 36 minutes and 91 minutes. The lime dissolved decreased steadily, .028, .013, .010 and .005, while the carbonic acid steadily increased, 1.25, 2.46, 3.44 and 4.98 per cent. Addition of 2 per cent hydrate lime was sufficient at all periods to restore the cement to its original slow-setting condition.

On the other hand, cement mixed with hydrate lime and exposed to air became quick-setting, and showed disappearance of free lime and increase of carbonic acid in the same manner as pure cement. The addition of hydrate lime, therefore, to cure quick-setting must be made just before use.

Prizes for Concrete House Designs.

PITTSBURG, PA., Jan. 18.—Through the liberality of the Universal Portland Cement Co., the Pittsburgh Architectural Club is enabled to offer three cash prizes of \$250, \$100 and \$50, respectively, for the best designs for suburban residences and garage to be constructed of concrete. The house and garage together must not contain more than 50,000 cubic feet. Cubage will be calculated from the top of cellar floor. In the house, eight feet and six inches will be allowed from the top of cellar floor to the top of first floor. Garage cubage will be taken from the top of finished floor. Cubage includes actual construction of porches, cornices, steps, etc., connected with the house. Dimensions in calculating cubage will be scaled from the drawings. Designs which are found by the jury to contain more than the above stated cubical contents will not be considered.

The house should be designed for a family of five persons, three adults, two children, and two servants. The garage should contain space for one large touring car and work bench.

There are no restrictions of treatment or style of the house with the exception of the cubage and concrete construction. The relation of the house and garage is part of the problem, including driveway communication for the convenient handling of the automobile.

The jury comprises Edward Stotz, president Pittsburgh Chapter, A. I. A.; Henry Hornbostel, dean Department of Architecture, Carnegie Technical Schools; Henry McGoodwin, assistant dean, Carnegie Technical Schools; J. Beatty Orth and D. E. Allison.

There will be three sheets of drawings required. Drawings must be on heavy cardboard. No wood frames or glass allowed. All sheets of each set must be the same dimensions and must not exceed 20x30 inches. Drawings may be rendered in any medium, but adaptability to half-tone reproduction is very desirable. The drawings are to be delivered flat to the Pittsburgh Architectural Club, at the Carnegie Institute, Pittsburgh, Pa., not later than 12 o'clock noon, February 16. The prize drawings are to become the property of the Universal Portland Cement Co., and the right is reserved to exhibit or to publish any or all of the others. The full name and address of the designer will be given in connection with each design published or exhibited.

Talk Concrete Roads in Iowa.

CORNING, IA., Jan. 17.—Dr. W. F. Amdor, of Carbon, who was in Corning recently, said they had been discussing at Carbon the question of a road constructed of concrete between Carbon and Corning, similar to the manner in which our concrete crossings are constructed. This is a new proposition and the Carbon gentleman said while it would be expensive such a road ought to be lasting and certainly would be passable at all times of the year.

The time is coming when the road from Carbon to Corning must be permanently improved. There has been enough spent on it in the past twenty years to build a rock road, and now we have a poor excuse of a road much of the time.

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Do you realize the importance of uniformity in Portland cement? The fact that Universal is uniform means that it *always* acts the same under similar conditions; that it *always* sets properly; that its color is *always* the same popular greyish color and that it *always* produces the same sound durable concrete.

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RELIABILITY

WAR DEPARTMENT
ENGINEER OFFICE, UNITED STATES ARMY.

Nashville, Tenn., February 20, 1909.

KOSMOS PORTLAND CEMENT COMPANY,
Louisville, Ky.

Dear Sirs:—Replying to yours of the 12th instant, I beg to advise you that our records show that 22,250 barrels of Kosmos cement were received at Hales Bar, Tennessee River, for the lock under construction at that point, between June 23 and September 25, 1908. All of this material was tested and all of it accepted under the requirements of the Engineer Department specifications.

Very respectfully,

WM. W. HARTS,
Major, Corps of Engineers

A Destructive Fire Prevented the Completion of the 100,000 Barrel Contract. The Rebuilt Mill is Fire-Proof.

It is universally recognized that no tests are more exacting than those of the War Department. A record of uniform acceptance, such as the above, is the best assurance to the purchaser of the unvarying quality of KOSMOS cement. It is a FACT—more convincing than any amount of TALK.

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Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years. Cement as finely ground as any on the market. Guaranteed to pass all the standard specifications.

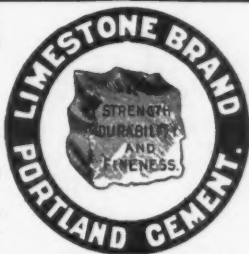
Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

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A MODEL CEMENT from every point of view, Superior Portland classes with the best, and is outclassed by none. Its concretes grow harder year by year.

THE SAFEST CEMENT is found in Superior Portland for

work over or underground or water, a fact well proven by practical tests in locks, dams, piers, walls, gutters, sidewalks, etc. It sets like adamant.

LOW MAGNESIA makes Superior the ideal Portland Cement for endurance. It contains but a fraction of one per cent magnesia.

BOOKLET "C 7" tells how it is made, of what it is made, and why it will last for ages. Mailed on request.

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HIGHEST GRADE of Portland Cement

Every Barrel Absolutely Uniform.

R. R. facilities especially adapted for prompt shipments in the northwest.

Capacity 1,500,000 bbls. Yearly.

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Eight Houses in Indianapolis, Indiana

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Ottawa, Illinois

LARGEST SHIPPERS OF WHITE SAND IN THE UNITED STATES

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A Page from Our New Catalog

If you wish to enter the concrete building material business; if you are expecting to build, and desire first hand knowledge concerning an economical, fire and weatherproof home, or merely wish to learn more about **Pauly** concrete Structural and Fireproofing Tile, we have a copy of this catalog for you. Every point touched upon below is taken up in detail in other parts of this abundantly illustrated catalog, and we know you will find it interesting and instructive. It tells how more American lives can be saved each year than were lost in the entire Russo-Japanese war. Just your name and address will bring this catalog to you.

Pauly Concrete Tile Must Logically
Replace Wooden Construction in the Near Future

Concrete Structural Tile

The Embodiment of Every Essential Qualification for
Modern Construction

Structural tile of concrete is conceded to be the most advanced attainment of the industry, and it is absolutely independent of all the other branches of concrete building materials or construction systems. It is the route by which the initial cubic yard of concrete (Portland cement, a suitable aggregate and water) attains its highest value. It is now reduced to a business proposition containing a substantial profit for manufacturer and user alike.

The system for manufacturing this material in easy to understand, practical and the most scientific method of handling concrete. Structural tiles of every useful shape and size can be produced of concrete, and such tile have many important advantages over all other materials that have heretofore been produced for purposes parallel to those for which concrete structural tile is useful and applicable. All the structural tile made by our system are cast or molded by specially designed machines in steam-heated molds, the materials having first been properly proportioned, mixed and prepared for pouring. Excess water being driven off by steam, the tile is ejected from the mold mechanically, and then annealed or cured in an oven provided with steam connections giving a definite progression of heats and moisture so as to secure quickly the complete and perfect crystallization of the concrete material. The finished tile has the minimum porosity for the absorption of water obtainable in concrete, while at the same time the highest fire resisting quality is attained, both being due to the extreme density of the concrete produced by the process. The corners, edges, angles and plane surfaces of the tile are all mathematically correct, and in this respect these concrete tile outclass every other building material of whatever composition or for whatsoever purpose. The economic uses for such materials are apparent to every practical constructor of buildings.

Exhaustive tests have been conducted to establish the structural value of this new building material, to prove its strength in compression, the amount of absorption when immersed in water, and its resistance to fire—these being the three elements of importance to be considered in every building material. All such tests have been conducted publicly upon a practical and thorough basis, and every one of them has demonstrated this type of concrete tile to possess the highest qualifications in

each of these requisites. The tests are taken up in detail upon another page.

The practical construction work that has been done during the past two years, under the eye of the inventor of the system and machinery for making the tile, Mr. A. A. Pauly, of Youngstown, O., has been highly successful in every case, as exhibited by scores of houses finished and now in use. The inventor has organized and established an extensive plant, which at the present time is crowded with business to its capacity, and is being operated at a substantial profit. The basis of operations can be expressed in a few words:

By means of this system the typical or initial cubic yard of concrete, costing approximately \$3, is transformed—by a factory cost of approximately \$1—into a commodity readily salable at from \$7 to \$10, according to the size and configuration, which commodity will find a ready sale in unlimited quantities.

The success of the pioneer plant is convincing proof that in the **Pauly** system for concrete structural tile manufacture lies a wonderful opportunity in a new phase of the manufactured building material business. One that contains, indeed, a substantial profit, with a growing future, which logically will develop an enormous demand.

The Concrete Stone and Sand Company is placing the **Pauly** tile machines with well qualified manufacturers, having suitable concrete aggregates and capital to insure the installation of plants capable of carrying on this business successfully. This action is based upon the tremendous local growth of the business and upon the constantly increasing demands for concrete structural tile from all parts of this country and foreign lands. The machines are leased only; this plan being adopted in order to insure the lessee of the exclusive control of the machines in the territory in which he operates, during the life of his lease.

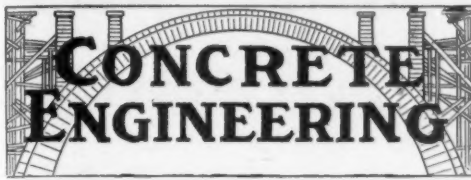
We wish to urge a careful examination of these and following statements, as only such parties as will engage to make and maintain a high grade product, can become lessees of these machines. We are always glad to discuss this proposition with those contemplating an entrance into this branch of the concrete industry, and extend herewith a cordial invitation to all those wishing to visit our plant and meet the inventor in person.

The Concrete Stone and Sand Company was the first plant to adopt the **Pauly** system of manufacturing Structural and Fireproofing Tile from cement. This was about two years ago. Our catalog tells of its wonderful success and repeats testimonials of representative building experts. Address

The Concrete Stone and Sand Co.

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The following convention dates have been announced for 1910:

Nebraska Cement Users Association at Lincoln, February 1-4.

Interstate Mantel and Tile Dealers Association of the United States at Chicago, February 15-19.

National Association of Cement Users at Chicago, February 21-25.

American Society of Engineering Contractors at Chicago, February 24-26.

National Builders Supply Association, at Chicago, February 23-24.

Illinois Society of Municipal Contractors at Chicago, February 24-26.

Northwestern Cement Products Association at Chicago, February 18-26.

Iowa Cement Users Association at Cedar Rapids, March 9-11.

CEMENT SHOW.

Principal Railway Association, Give Reduced Rates for the Big Exhibit—Rules that Will Govern the Show.

As the time for the third annual cement show approaches—February 18-26—the offices of the Cement Products Exhibition Co., at 115 Adams street, Chicago, are becoming a veritable hive of activity. General Manager Beck and his assistants are working hard, and already have most of the details arranged. One of the most important of these is the securing of reduced rates from the railways, so that visitors to the show are sure of obtaining round-trip tickets at one and one-half fare, where the one way fare is \$1 or more.

This rate has been granted by the roads in the Central, the Trunk Line, the New England, and the Eastern Canadian Passenger Associations, which include the following lines:

Central Passenger Association.

Ann Arbor R. R.
Baltimore & Ohio R. R.
Baltimore & Ohio Southwestern R. R.
Bessemer & Lake Erie R. R.
Chesapeake & Ohio Ry.
Chicago & Alton R. R. (From St. Louis, Mo., and all stations in Illinois.)
Chicago, Cincinnati & Louisville R. R.
Chicago, Indianapolis & Louisville Ry.
Chicago, Indiana & Southern R. R.
Chicago, Peoria & St. Louis Ry.
Cincinnati & Muskingum Valley R. R. Co.
Cincinnati, Hamilton & Dayton Ry.
Cincinnati Northern R. R.
Cleveland, Akron & Columbus Ry. Co.
Cleveland, Cincinnati, Chicago & St. Louis Ry.
Dayton & Union R. R.
Detroit & Mackinac Ry.
Detroit, Toledo & Ironton Ry.
Dunkirk, Allegheny Valley & Pittsburgh R. R.
Erie R. R.
Ft. Wayne, Cincinnati & Louisville R. R.
Grand Rapids & Indiana Ry.
Grand Trunk Ry. System.
Hocking Valley Ry.
Kanawha & Michigan Ry.
Lake Erie, Alliance & Wheeling R. R.
Lake Erie & Western R. R.
Lake Shore & Michigan Southern R. R.
Louisville & Nashville R. R.
Louisville, Henderson & St. Louis Ry.
Marietta, Columbus & Cleveland R. R.
Michigan Central R. R.
Mobile & Ohio R. R.
New York, Chicago & St. Louis R. R.
Norfolk & Western Ry.
Northern Ohio Ry.
Pennsylvania Co.
Pere Marquette R. R.
Pittsburgh & Lake Erie R. R.
Pittsburgh, Cincinnati, Chicago & St. Louis Ry. Co.
Southern Ry.
Toledo, St. Louis & Western R. R.
Toledo & Ohio Central Ry.
Vandalia R. R. Co.
Wabash R. R. Co.

Wabash Pittsburg Terminal Ry.
Wheeling & Lake Erie R. R.
Zanesville & Western Ry.

Trunk Line Association.

Baltimore & Ohio R. R. (East of Bellaire, Wheeling, Parkersburg and Kenova.)
Baltimore Steam Packet Co.
Buffalo & Susquehanna Ry.
Buffalo, Rochester & Pittsburgh Ry.
Central R. R. of New Jersey.
Chesapeake & Ohio Ry. (East of Kenova and West Virginia.)
Chesapeake Steamship Co.
Cumberland Valley R. R.
Delaware & Hudson Co.
Delaware, Lackawanna & Western R. R.
Erie R. R. (East of Buffalo, Suspension Bridge, Dunkirk and Salamanca.)
Fonda, Johnstown & Gloversville R. R.
Jamestown, Chautauqua & Lake Erie Ry.
Lehigh Valley R. R.
New York Central & Hudson River R. R.
New York, Philadelphia & Norfolk R. R.
Norfolk & Washington Steamboat Co.
Pennsylvania R. R.
Philadelphia & Reading Ry.
Pittsburg, Shawmut & Northern R. R.
Western Maryland R. R.
West Shore R. R.

New England Passenger Association.

Boston & Albany R. R.
Boston & Maine R. R.
Canadian Pacific Ry. (Eastern lines.)
Central Vermont Ry.



FIRST PRIZE DESIGN FOR CHICAGO CEMENT SHOW CENTERPIECE.

Grand Trunk Ry. System.
Maine Central R. R.
New York, New Haven & Hartford R. R. (Including Sound lines of N. E. N. Co.)
York Harbor & Beach R. R.

Eastern Canadian Passenger Association.

The territory of this Association comprises in a general way the eastern half of the Dominion of Canada.

In order to secure this concession it was necessary for the Cement Products Exhibition Co. to assure an attendance of at least 1,000 people from out of town. It will assist the company in making this guarantee good if every visitor from out of town will make it a point to take advantage of this reduced rate by applying to his local agent a day or two in advance of coming to Chicago, and obtaining a certificate. On buying his ticket to Chicago he will pay full fare. Arriving here he will have his certificate validated by the railway representative at the Coliseum and can then buy his return ticket at half rate.

Tickets on roads in the Trunk Line Association can be bought February 15-23 inclusive, and in the Central, New England and Eastern Canadian Associations February 15-24. The return limit on all tickets is March 2.

(Continued on page 47.)

NATIONAL CEMENT USERS

Attractive Features Prepared for the Annual Convention of the National Cement Users Association.

The program for the sixth annual convention of the National Cement Users Association, which is to be held at the Auditorium hotel, Chicago, February 21-25, is one of unusual interest. The official copy is as follows:

Monday, February 21.

10 a. m.—Meeting of the Executive Board at the Auditorium hotel.

2 p. m.—Meeting sectional committees on Art and Architecture, Building Laws and Insurance, Concrete and Reinforced Concrete, Exterior Treatment of Concrete Surfaces, Machinery and Appliances, Roadways, Sidewalks and Floor, Specifications for Cement Products, Specifications for Fireproofing.

3 p. m.—Meeting of the section on Roadways, Sidewalks and Floors. General discussion covering the preparation of materials, laying, finishing and costs.

EVENING SESSION—8 O'CLOCK.

Formal opening of the convention, Auditorium hotel.

Address of welcome by Mayor Busse, of Chicago.

Response by President Richard L. Humphrey.

Address by Christian C. Kohlsaat, president, Lewis Institute, Chicago.

Address by John M. Ewen, consulting engineer, Chicago.

Business session.

Report of the Committee on Roadways, Sidewalks and Floors, C. W. Boynton, chairman.

Proposed standard specifications for concrete street pavements.

Proposed standard specifications for Portland cement curb and gutter.

Proposed revision of the standard specifications for Portland cement sidewalks.

Tuesday, February 22.

9 a. m.—Meeting of the section on Specifications for Cement Products. Discussion on the manufacture, curing, cost, etc., of cement hollow building blocks, architectural concrete blocks, drain tile and pipe.

10:30 a. m.—Report of Committee on Specifications for Cement Products, W. P. Anderson, chairman. Proposed standard specifications for architectural concrete blocks. Proposed standard specifications for plain concrete drain tile.

Report of Committee on Machinery and Appliances, L. V. Thayer, chairman.

Business session—Report of the Executive Board, report of the Committee on Contributing Members, place of next convention, election of officers.

EVENING SESSION—8 O'CLOCK.

Annual address by the president, Richard L. Humphrey, Philadelphia, Pa.

Report of the Committee on Art and Architecture, F. A. Norris, chairman.

Report of the Committee on the Exterior Treatment of Concrete Surfaces, L. C. Watson, chairman.

Use of Concrete for Farm Buildings from the Sanitary Standpoint, S. Cunningham, Jr., New York, N. Y.

Wednesday, February 23.

9 a. m.—Meeting of section on Concrete and Reinforced Concrete, A. B. Lindau, chairman. General discussion on methods, selection of materials, costs, etc.

Laying concrete under water—Detroit river tunnel, Olaf Hoff, New York.

Comparative value and cost of the groined arch in large reservoirs, T. H. Wiggin, senior designing engineer, board of water supply, New York.

Report of Committee on Concrete and Reinforced Concrete, A. B. Lindau, chairman.

EVENING SESSION—8 O'CLOCK.

Concrete for maritime structures, Chandler Davis, department of docks and ferries, New York.

Application of concrete in large canal work, R. S. Greenman, resident engineer, office of state engineer, and surveyor, Albany, N. Y.

Comparative cost and efficiency of the pneumatic reinforced concrete dam.

Additional notes on use and cost of concrete for small houses, R. C. Knapp, Philadelphia, Pa.

Thursday, February 24.

9 a. m.—Meeting of the section on Building Laws and Insurance.

Meeting of section on Specifications and Fireproofing. Topical discussion on fire-resistive construction of buildings. Building regulations and their effect on insurance rates.

10:30 a. m.—Report of the Committee on Building Laws and Insurance, W. H. Ham, chairman. Proposed standard building regulations for the use of reinforced concrete. Report on insurance.

Report of the Committee on Specifications for Fireproofing, R. P. Miller, chairman.

Advantages and costs of reinforced concrete construction. J. P. H. Perry, contracting engineer, Turner Construction Co., New York.

EVENING SESSION—8 O'CLOCK.

This evening is reserved for a reception by the officers and members of the association.

Friday, February 25.

9 a. m.—Meeting of section on Art and Architecture.

Meeting of section on Exterior Treatment of Concrete Surfaces. Topical discussion on the artistic treatment of concrete surfaces of various kinds.

Meeting of the section on Machinery and Appliances.

10:30 a. m.—Cost and advantages of concrete drain tile. J. H. Libberton, assistant inspecting engineer, Universal Portland Cement Co., Chicago.

Installation and operation of a steam curing plant. F. S. Phipps, manager, Central Stone Co., St. Joseph, Mo.

Preparation of concrete, from selection of materials to

(Continued on page 50.)

PERMANENT PARK IMPROVEMENT.

(Continued from page 3.)

use. No contractors have been employed on any of the construction.

Fine Specimens of Bridge Work.

One of the big pieces of reinforced concrete work in the park is the bridge across the northern end of the lagoon. It was built in 1908, Bedford cement being used. It has a single span of 100 feet and is handsome in appearance. It is faced with a composition of red and black granite screenings bordered with Blanc cement. In order to give the appearance of uniformity, the same surfacing is put on all of the concrete work in the park.

South of the bridge is the boat-house, also built of reinforced concrete. Lehigh cement was used on this job, and the exposed parts were surfaced, as in the case of the bridge. The roof was covered with earth to a depth of three feet, and shrubs were planted in it, completely hiding the boathouse from view on all sides except the eastern elevation. Placing the earth on the roof in this way introduced a number of factors in conjunction with heavy dead loading which could only be provided for effectually by adopting heavily reinforced concrete.

The boat-house is 50 feet wide and 150 long. It contains the canoes and rowing shells of the boat club. One of its features is that it is provided with sky-lights.

Part of the building, and extending in a semi-circle away from the boat-house proper, is that section containing the locker-room, toilets and shower-baths.

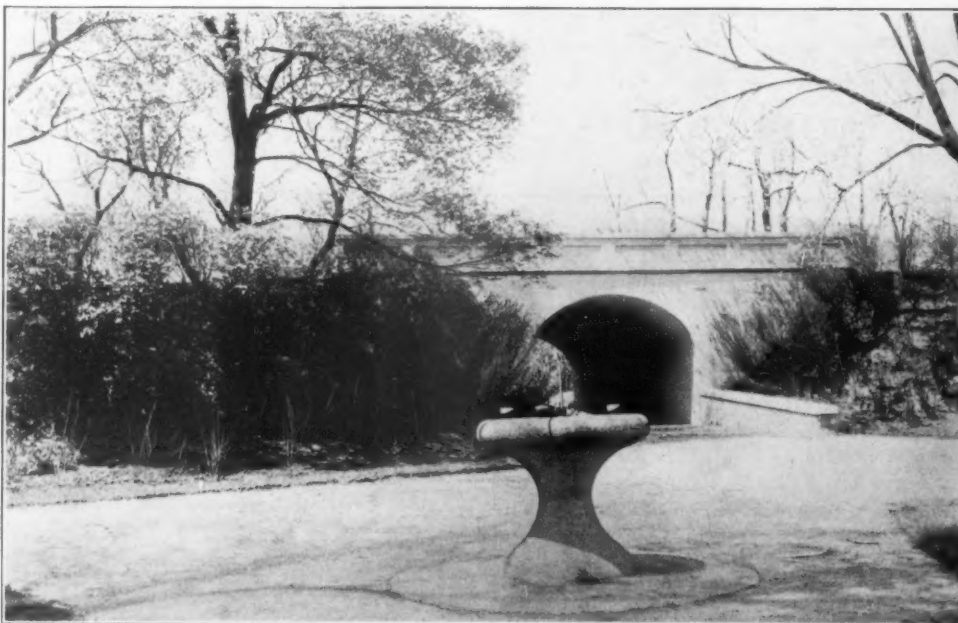
Every fence post in the park is made of reinforced concrete. They are made in all shapes and sizes, according to requirements of service, and are reinforced in different ways, depending upon the needs of each case. These, too, are coated with the surfacing already referred to. Wooden forms for the most part have been used in constructing the posts. Many of them have been in use now for four years and are giving perfect service, without showing signs of wear. The wooden posts formerly used were comparatively cheap when the initial cost alone was considered, but in addition to rotting out quickly they required to be painted constantly, an item of expense from which the park is now relieved with the reinforced posts. The latter, it has been found, can also be made very cheaply.

Makes the Improvements Permanent.

Before concrete was resorted to as a material for fence posts, the park authorities were confronted with the necessity of continually tearing out panels of fencing and replacing them on account of the posts having rotted away. About the lagoon, for instance, is a wire fence nearly four miles long. The soil surrounding the lagoon is of a sandy composition and is kept wet by the percolation of the water from the lake. When wooden posts were used the natural result was that they decayed with remarkable rapidity. The concrete posts, on the other hand, are there to stay, and time, labor, material and paint are being saved.

Visitors to Lincoln Park always comment upon the beautiful ornamental lamp posts which mark the principal boulevards. Sixteen feet high, having splendid lines, and topped with bronze grills and opalescent globes, they stand out in a way that inevitably demands attention. Reinforced concrete was used in their construction, and it not only produced a lamp post which will withstand the elements for generations, but also one which is easy to look at. The damp soil and humid atmosphere of the park during a large part of the year proved a fatal combination in the case of iron posts, which rusted so rapidly that they had to be replaced within five years from the time they were erected. The great cost attached to this made it an expensive operation.

About 200 lamp posts have been set up along the



DRINKING FOUNTAIN AND VIADUCT.

boulevards. They were designed by Perkins & Hamilton, Chicago architects, and cast-iron forms were used for making them. These were faced and finished and fitted at the foundry, and cast so that the concrete was poured in from the side. To make the final panel another piece was fitted over.

In making these posts the finishing coat was put inside the forms before the concrete was poured in. The reinforcing consisted of four 1/2-inch corrugated bars, though a 2 1/2-inch iron tube carrying the cable to the lamp acts as a kind of reinforcement. The posts are set up in concrete in 4-foot concrete buttresses. Lehigh and Marquette cements were used on these posts.

All of the water fountains, of which there are some seventy-five in the park, are of concrete construction. They are of the sanitary type, each having four bubbling cups and two spouts. This kind of fountain is shaped roughly like an hour-glass, and is made in two pieces, which are cemented together after molding. Wooden forms lined with zinc and fabricated at the park shops hold the poured concrete mixture. In order to provide for the water pipes, wooden dowels are run into the concrete and drilled out after it has set. Lehigh cement was used in all that have been made thus far.

Concrete Found Everywhere.

Zinc-lined wooden forms were also used in making benches with which the park is equipped. Owing to the numerous curves and lines of the typical park bench, the work of making the forms is somewhat difficult. Ordinary rod reinforcing is used for these, and concrete has made as good a bench as it has a post or fountain.

The boxes which contain the road sweepings are of concrete, reinforced, and set into the ground. They are provided with sheet iron covers and inside galvanized iron boxes. When full, wagons remove the boxes and replace them with empty ones. The forms for these are of wood, and offer no difficulties, as they are plain and cubical.

"Islands of safety" placed in the roadways, surmounted by lamps and used as guides for pedestrians and automobiles, have bases made of solid concrete, with no reinforcement.

One of the most interesting uses to which reinforced concrete has been put is in the construction of a small viaduct, designed by Chief Engineer Lewis. It carries one of the principal roadways over a foot path. It has an eight-foot arch and tunnel surfaced with red and black granite screenings, mixed with quarter-inch crushed white marble. The balustrades are parapet type and are divided into panels. Its appearance is unusually attractive.

Reinforced concrete has gone into the construction of the wading pools for children in the park. They are shallow and intended to hold about a foot of water. Although they are subject to no particular load strain, reinforcing is used in them in order to prevent cracking, to which the settlement of the earth and the changes of temperature would subject them.

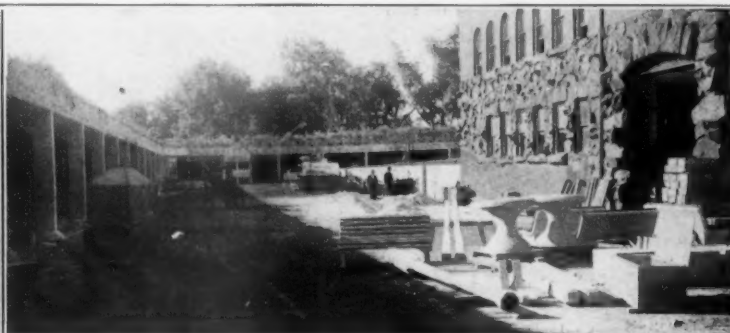
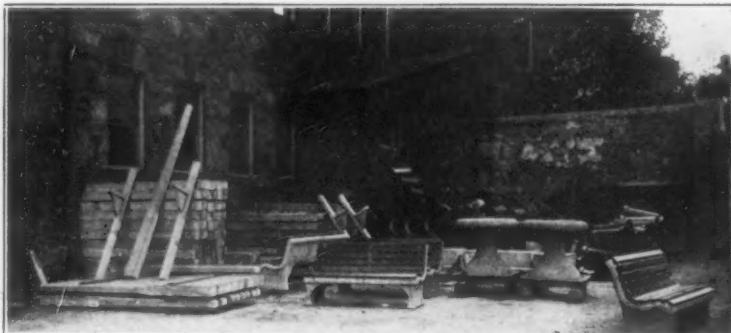
The grill-room and restaurant of Lincoln Park are contained in a brick building, but the floors, supports, fillers and foundations are all of reinforced concrete. Though no plans for more buildings or improvements are now in hand, it is practically certain that if additions are made to the park they will be of reinforced concrete, which has proved so serviceable and satisfactory in the works described.

Lincoln Park contains 300 acres and is a level stretch of ground. It has a 9-mile boulevard system, most of the roads being of macadam. Of late, however, these have been replaced to a considerable extent by tar-filled pavements, which resist the wear of automobiles better than ordinary macadam.

The park contains a fine zoological garden, and is the most popular in Chicago. It has been one of the leaders in the development of modern park improvements and largely through the work of its chief engineer. It is the oldest and richest park in Chicago, and is controlled by a state commission, which must confine its attention to Lincoln Park alone.

The present organization of the commission is as follows:

Francis T. Simmons, president; Arthur Lewis, chief engineer; M. H. West, superintendent and secretary; Theodore Freeman, treasurer; C. A. Churan, attorney; Leo Austrian, F. H. Gansberger, Bryan Lathrop, Amos Pettibone, Fred L. Wilk and Charles H. Wilson, commissioners.



TWO VIEWS OF THE CONCRETE WORKSHOP AND YARD AT LINCOLN PARK.

NEW TYPE OF SILO.

Made of Steel and Concrete Without False Work—
They Are Economical and Serviceable.

Lively interest has been aroused in a new type of concrete silo which has been erected by the Sharon Steel Hoop Co., of Chicago, on the farm of A. O. Fox, at Oregon, Wis. The important features of the silo are that it was erected without forms, and that the method of reinforcing is unusual. Its cost is said to be lower than that of any other concrete silo, and as its advantages over the wooden type are declared to be great, it is expected the new method will be used largely in constructing silos hereafter.

The Sharon Steel Hoop Co. has received hundreds of inquiries from farmers all over the middle West since the silo was put up, asking details as to the way it was done. Inasmuch as it has not been advertised extensively, the company believes this indicates that the new form meets a real want, which it is preparing to fill. It will have a miniature of the silo at the cement show next month, and it is expected to attract a great deal of attention, especially from those interested in practical farming.

A concrete foundation of the usual kind was built, and upon this a framework of slotted steel studding was erected. This studding is 2½ inches wide, spaced twelve inches apart. The studs are made of steel hoops, and have interlocking tongues cut out of the center of each upright piece. The tongue is thrown out at right angles and attached to the next stud, forming a horizontal line of braces at intervals of every 17 inches in the height of the silo. These tongues, together with expanded metal lath, which is attached to the studs on both sides of the wall, form the reinforcing. All the metal is galvanized to prevent rusting.

Hollow Walls of Concrete.

The steel framework is plastered on both sides with concrete, making the wall hollow and capable of being ventilated perfectly. This feature will be described in detail farther along. The concrete, inasmuch as it was plastered on and not held in forms, was of a lighter composition than that ordinarily used. It was mixed in the proportion of two parts of sand to one of cement, and two coats were put on. The first coat contained a lime paste to make the mass pliable, and also hair. After the second coat had dried, the inner wall was covered with the Medusa waterproofing compound, which was mixed dry, two pounds of the waterproofing being added to each sack of cement.

The silo has an inside diameter of fourteen feet, and is thirty feet high above the ground. It is 38½ feet high from the bottom, which is depressed several feet below the level of the ground. The walls are four inches thick, the studding being 2½ inches thick and the concrete being laid on on each side to a depth of ¾ inches. Universal Portland Cement was used in making the concrete, and gave entire satisfaction.

One of the features of the construction of the silo was the rapidity with which it went up. The work was in charge of Robert C. Heidt, of the Sharon Steel Hoop Co., and the silage was deposited in the structure twelve days after it was begun. The work was done last October under favorable weather conditions.



BOAT HOUSE OVERLOOKING LAGOON OF LINCOLN PARK, CHICAGO. BUILT OF REINFORCED CONCRETE AND TOPPED WITH EARTH.

tions, the concrete drying with just the right rapidity. The absence of forms of any kind probably contributed to the speed of the work, the plastering requiring only four days and the erection of the steel framework three days.

The hollow character of the walls enables a perfect system of ventilation to be adopted. There is a vent at the bottom of the wall, which can be operated from the outside, and as the roof is of the same construction, the air is carried up along the walls and escapes at the roof. The hood of the roof also runs down into the silo, and by means of a releasable shutter allows the silage gases to escape whenever it is desired. It had been intended to construct the roof of wood, and it was Mr. Heidt's idea to continue the reinforcing and the stud construction there, but this was changed, as stated above.

Advantages of the Cement Type.

The stave silo was the first form of construction adopted, and this is still being used to a large extent. The short life of this kind—they are said to average five years—and the fact that the temperature cannot be regulated easily, often causing the silage to freeze, are gradually combining to render the concrete silo the favored type. Of this style the concrete block and the monolithic have been used a great deal, but the new form is said to be cheaper and quite as satisfactory as the others. Being permanent and fire-proof, the initial cost is not really as large as it looks, and from the inquiries that have been received it looks as if there will be a great many of them built. The fact that the concrete silo is vermin-proof is also a factor of importance to the farmer.

The agricultural department of the University of Wisconsin is taking great interest in the silo, and intends to subject it to tests to see how it operates. Temperature readings are being taken at intervals now, and thus far the silo has been shown to be all that could be asked. The silage itself is behaving well under the severe test of the continued cold of the past few months, so that the experiment of the new type of construction (for it was built largely for experimental purposes) seems to have been successful.

The increasing use of modern buildings on the farm is largely due to the extension of knowledge about reinforced concrete, and it is believed that the concrete silo will suggest other methods by which this form of construction can be applied to the needs of agriculture.

Monster Testing Machine.

PITTSBURG, PA., Jan. 19.—The gigantic vertical compression testing machine being built for government use is nearing completion and in the course of a few months its erection will be begun on the old arsenal grounds in Pittsburgh. It will be used by the structural materials laboratories of the U. S. Geological Survey.

The machine is of entirely new design and its purpose is to test the strength of stone, brick and cement and of large steel columns for bridges and buildings. The machine is eighty feet high and is capable of exerting a crushing pressure of 5,000 tons. Engineers state that it will revolutionize the construction of buildings and bridges and make their collapse practically impossible, as the exact strength of any given piece of material can be definitely ascertained by the compression test.

Heretofore tests have been made mostly on small-sized columns and from data so obtained the strength of a large column has been estimated. This method has been found to be unsatisfactory.

Some idea of the size of the machine may be gained from the weight of its principal parts. The castings

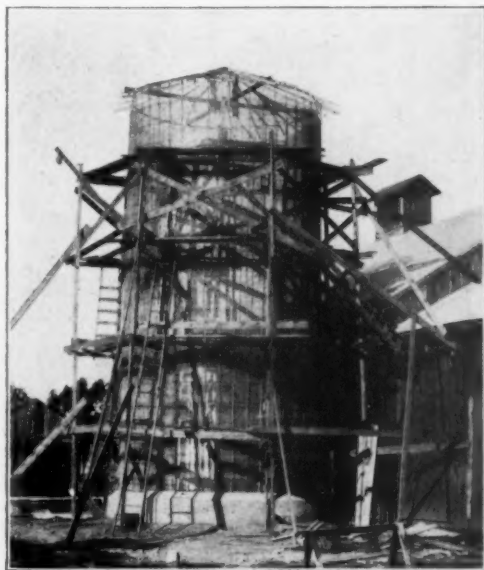
for the base and top head weigh approximately 50,000 pounds each. Each main screw will weigh over 40,000 pounds, the lower platform about 20,000 pounds, and the main cylinder 16,000 pounds. The top of the machine will be eighty feet above the floor, and the concrete foundation upon which the machine rests about ten feet below the floor lines.

New Industry at Watkins, N. Y.

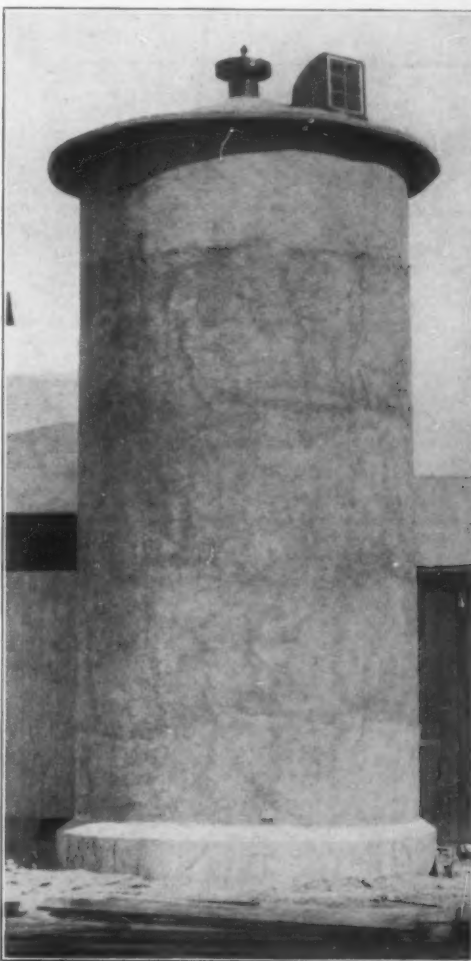
WATKINS, N. Y., Jan. 17.—A concrete block factory is now in operation in Watkins on Perry street, R. I. Baldwin having established construction works. Mr. Baldwin has had long experience in constructing concrete blocks, and is the pioneer worker in concrete sidewalk building in Watkins. He erected two houses at Willard, and has erected one cement block house in Watkins and has the plans completed for another.

Monroe, Mich., Firm Dissolves.

MONROE, MICH., Jan. 18.—The Radtke-Walters Co., manufacturers of concrete blocks, has been dissolved by mutual consent. Radtke continues the business.



CONCRETE SILO UNDER CONSTRUCTION WITHOUT USING TEMPORARY FORMS.



REINFORCED CONCRETE SILO, OREGON, WIS., BUILT BY THE SHARON STEEL HOOP CO. WITHOUT FORMS.

CONCRETE BRIDGES.

Reinforced Arches May Now Be Seen in Every Locality—Recent Structures in Middle West.

Although the development of reinforced concrete has been remarkable in all directions, and the field for its use is becoming more extended every day, one branch which is attracting unusual attention from engineers is that of bridge-building. For structural work of all kinds reinforced concrete is doing what is asked of it, and in that most delicate of the engineer's feats, the building of a bridge, it is proving its worth whenever it is given the chance.

The reasons for its increasing popularity in this field of construction are many. In the first place, bridges of reinforced concrete can be built more quickly than the other kinds. In the long run it is also found cheaper, though the initial cost in some cases may be slightly greater. The life of a concrete bridge is so long that it is hardly possible to fix it, whereas the average steel bridge lasts hardly half a century. This is one reason why railroads, for instance, are replacing their steel bridges with concrete ones as fast as the old structures wear out.

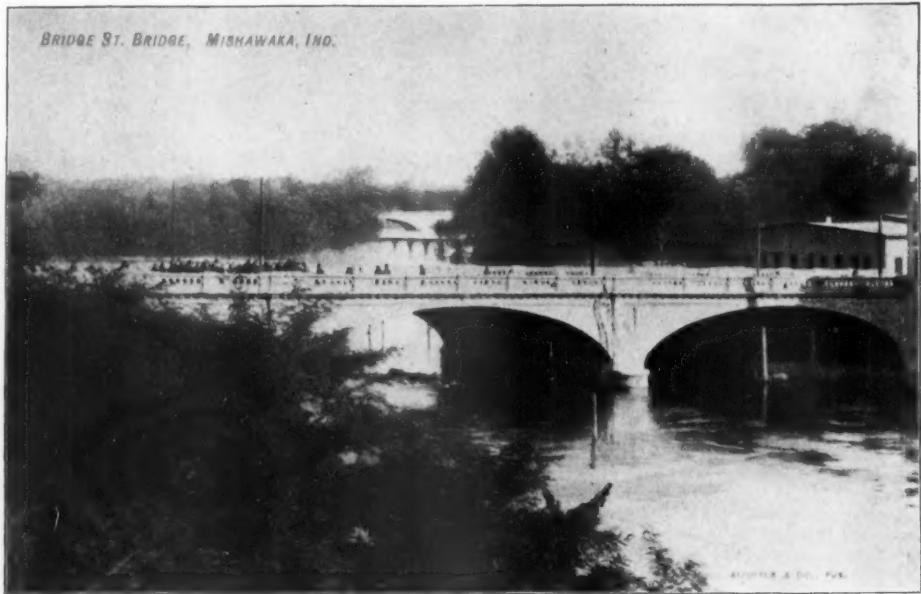
A feature which appeals to local interest when the matter of bridge construction comes up is that a large part of the material needed in the construction of a concrete bridge may be secured right on the ground. The sand, the lumber for forms and the labor can usually be found close at hand, while if a steel bridge is erected practically all of the material and a great part of the labor must be brought from a distance. This factor is operating to probably a greater extent than one would think, especially in connection with bridges which are built in the country districts.

Although for a long time there were those who regarded the concrete bridge structure as possessing less stability than one of steel, for instance, the consensus of engineering opinions is now in favor of the concrete type, and it is held that in point of strength it is all that has ever been claimed for it. Though there have been occasional instances of bridge failures when reinforced concrete had been used in the construction, it has been found in practically all such instances that the fault was not due to the construction, but to some extraneous cause.

For instance, the Peoria municipal bridge, which belongs to the pier and girder arch type which is now very generally favored, collapsed May 1, 1909, and there was a disposition to credit its failure to the design. Investigation soon showed, however, that the failure was due to the settling and shifting of the foundations of one of the piers, and that this followed imperfect driving of the piles for the foundation and failure to provide the permanent coffer dams demanded by the specifications. Had these been followed, there is no doubt that the bridge would have stood any test indefinitely.

Maumee River Bridge.

The pier and girder form of construction is par-



BRIDGE STREET BRIDGE, MISHAWAKA, IND.

ticularly well fitted for carrying heavy loads. The Maumee river bridge, near Waterville, O., about 15 miles southwest of Toledo, is a fine example of this form. The roadbed is 45 feet above low water and carries a single track of the Lima & Toledo Traction Co. It is designed for extremely heavy loading, far heavier, in fact, than it will be called on to carry for several generations to come, since it is held that the structure will endure for thousands of years and should be able to take care of the increased traffic of the future.

It has a carrying capacity of 500 tons on each span, yet the efficiency of reinforced concrete in such a design is so great that only 9,200 cubic yards of concrete were used and 100 tons of steel. The bridge cost only \$77,000, a figure which will bear comparison with the cost of steel bridges in the same locality. As a matter of fact, ice jams at Maumee, about four miles below the location of this bridge, wrecked a steel bridge of four 140-foot spans, while such a happening is almost beyond reason in the case of the new bridge.

In the first place, its great weight, ten times that of the steel bridge, will protect it, while its arched form and the corresponding weight on the piers make the possibility of a jam spreading the piers, as in the case of the other structure, out of the question. This bridge, said to be the longest and highest concrete bridge in the world, was built by the National Concrete Co., a little over a year ago, according to

the type designed by the National Bridge Co., of Indianapolis.

Another fine example of this form of construction is that of the bridge of the Pacific Electric Co., of Los Angeles, spanning the San Gabriel river near Glendora. It is the biggest concrete bridge west of the Rockies, being 1,040 feet long. It is divided into 18 spans, which are supported at each end by concrete piers sunk to a depth of 19 feet below the bottom of the stream. The spans hang 50 feet in the clear.

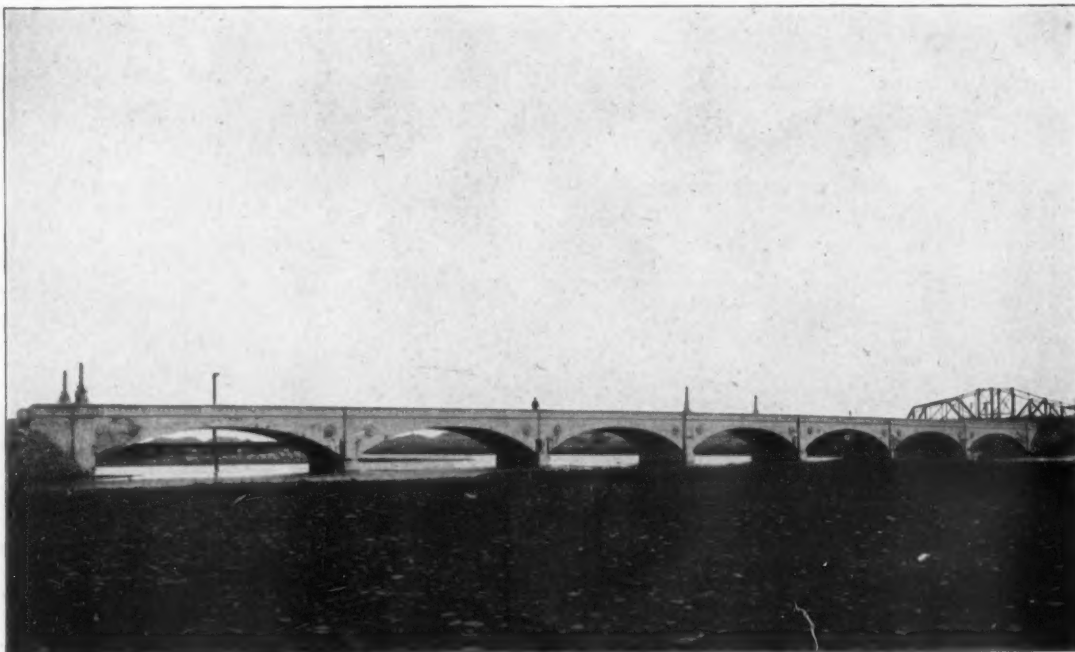
The piers, of which there are 17, are each 12 feet thick and 30 feet wide at the bottom, and 7 feet thick and 26 feet wide at the top. The width of the bridge is 26 feet, taking care of the double track of the railroad which runs over it. The supporting strength of the structure, owing to the type of construction, is enormous. This was one of the points striven for, as the mighty current of the San Gabriel in flood has washed away more than one bridge, both wooden and steel.

Eight thousand cubic yards of concrete were used in building the bridge and 300 tons of steel were used in the reinforcement. The reinforcing rods were twisted, and varied in diameter from one-half to one and a half inches, depending upon the probable load. The method of reinforcing is interesting. Sixty-inch rods were set in pairs, running longitudinally, in each span, placed one on top of the other at intervals of ten inches. The upper rod was attached to the corresponding rod of the adjoining span, while the lower was bent and sunk into the concrete of the top part of the pier. It is believed that this method contributed in a large degree to the strength of the structure.

Expansion joints were placed at every pier to allow for the contraction or expansion of the mass without danger of cracking. Drains were made to provide for the discharge of water which may gather in the porous parts of the bridge. The concrete of the interior of the piers and arch ends was mixed with large boulders, adding considerable to the stability of the whole.

Some recent construction work involving the erection of bridges similar to those described has been done in the middle West. Three are in mind, all of which were built according to the most approved methods. At Bridge street, Mishawaka, Ind., a three-span bridge was erected of reinforced concrete, E. J. Landers & Co., of Canton, O., doing the work under the direction of Willis Moore, city engineer. Fifteen thousand barrels of Wolverine cement were used on this job, and the bridge combines the elements of strength and beauty.

At North Main street, in the same town and by the same engineers and contractors, another reinforced concrete bridge was built. It is practically a twin of the other, having three spans and being an unusually attractive piece of work. Twelve thousand barrels of Wolverine cement went into the construction of this particular work.



BRIDGE OVER DES PLAINES RIVER AT LEMONT, ILL.

A larger proposition was the bridge over the Desplaines river at Lemont, Ill., which was constructed by Joseph Heineman, of Chicago. It contains seven spans, and is longer than either of the others. It presents a magnificent appearance, and is the pride of Lemont. Wolverine cement was used exclusively in the construction of the bridge, which, with the others, is regarded as among the best structures of the type to be found anywhere in the middle West.

One of the most remarkable bridges of any kind ever built, and certainly one of the most interesting of concrete structures, is that of the Florida East Coast railway, which is now about to be completed. It extends from the mainland to Key West, and is a series of concrete piers and arches, built not only to carry a heavy load, as it will of course be used by the railroad, but also to withstand the attack of the waves. The cost of this bridge has been enormous, some of it being as high as \$1,500,000 a mile. The concrete piers were built by a new process of construction which has enabled them to be finished much more rapidly than by ordinary methods.

USE OF MINERAL OILS WITH CONCRETE.

BY ALBERT MOYER, ASSOC. AM. SOC. C. E.

Manager of Sales Department, Vulcanite Portland Cement Co., New York.

The mixing of oil (mineral) with concrete is very simple. The oil, alkalies and water will form an emul-

sion to be hoped that chemists and cement testers will actively take up this work and carry on investigations covering long time periods.

Tensile strain tests should be discarded. Such tests have now been discarded by the German Portland cement manufacturers and compression tests substituted. With the increased scientific knowledge and the consequent better material produced by Portland cement manufacturers, tensile strain tests have become obsolete, and owing to the brittleness and extreme sensitiveness of neat Portland cement, the unscientific methods employed in tensile strain tests, the personal equation involved, tensile strain tests do not indicate the possible load which Portland cement concrete may carry.

I, therefore, would earnestly advocate compression tests on cylinders of a size which will cause the area to equal 6-inch cubes. In order that such tests may be standardized and relative, standard sand should be used, and if possible a standardization of gravel or crushed stone. If crushed stone, trap rock should be used, all passing through a 3/4-inch mesh and all collected on a 1/4-inch mesh. Mix up cylinders which will theoretically figure maximum density, add varying proportions of oil from 5 to 20 per cent. Also make up another set of cylinders adding varying proportions of hydrated lime, from 10 to 30 per cent, increasing the percentage of oil with the increase of hydrated lime. The addition of hydrated lime theoretically should permit the addition of a larger percentage of oil, as we thus have a greater emulsifying material.

Varying percentages of Portland cement may be used, always keeping the relation between the sand and stone the same, maximum density having been figured. The amount of Portland cement to be increased above that which is required to fill the voids in the sand.

Experiments with Oil-Mixed Concrete.

Two months ago the writer made some briquettes and pats with the object in view of ascertaining if the mixture of oil with wet neat cement and mortar would have

average results obtained by various authorities, figuring the expansion and contraction by percentage, the following are the results:

Neat Portland cement hardened in air at the end of 16 weeks shows a .15 per cent contraction.

One to 3 mortar hardened in air at the end of 16 weeks shows .05 per cent contraction.

Neat Portland cement hardened under water at the end of 16 weeks shows .05 per cent expansion.

One to 3 mortar hardened under water at the end of 16 weeks shows a .015 per cent expansion.

Action of Oil on Cement.

Exhaustive tests have been made by a number of authorities on the action of oils on concrete. The effect of oil on concrete and the effect of oil emulsified in concrete are two separate and distinct subjects. We are informed by reliable authorities that concrete immersed in animal or vegetable oils will in time disintegrate and that concrete immersed in mineral oils is unaffected. In the first instance there is no chance for the oil to emulsify, in the latter the oil is separated into minute globules. A large field of usefulness is ready for oil mixed and emulsified in concrete. The emulsion takes place after the oil is mixed with the wet concrete and not before as has been done in a patented article.

A mere casual glance at the uses of Portland cement concrete would indicate that oils mixed with the concrete would prove very desirable for dustless waterproof floors for office buildings, for slaughter house non-absorbent floors, impervious concrete drain tile and sewers. If the experiments to be carried on in the future prove that mineral oils in the course of time are not disadvantageous, the drain tile problem has been solved, for there can be no action of the alkalies or other injurious elements to non-absorbent, dense and impervious concrete. Such concrete will be particularly desirable for silos. Some of the acids formed by the silage in the bottom of the silo would probably not attack a dense, non-absorbent impervious concrete.

Contraction cracks will be eliminated in cisterns, drinking troughs, live stock feeding floors and platforms. Some objection may be raised to the use of oil mixed concrete from the standpoint of its liability to flavor the water or the food. If we stop to consider that the oil is divided into minute globules, thoroughly emulsified, we will see that while there may be some odor there is not likely to be any taste after the drinking trough, feeding floor or cistern has been in use for a few days.

Such oil mixed concrete will be effective for liquid manure cisterns for the reason above described. It will also be particularly adapted to terrazzo floors. One of the particular advantages will be for stucco work, the exterior plasters.

Oil Used Centuries Ago.

It would seem that this idea of mixing oil with wet mortar was novel and new, but like many discoveries it only proves to be a rediscovery. In the first century A. D., Marcus Vitruvius Pollio, the famous Roman architect, gives the following detailed specification for stucco: "A mixture of well hydrated lime, marble dust and white sand mixed with water, to which mixture is added either hog's lard, curdled milk or blood."

In A. D. 1280 at Rockingham Castle, England, melted wax was mixed with the mortar.

In A. D. 1324 in the work of King Edward II. at Westminster pitch was mixed with mortar.

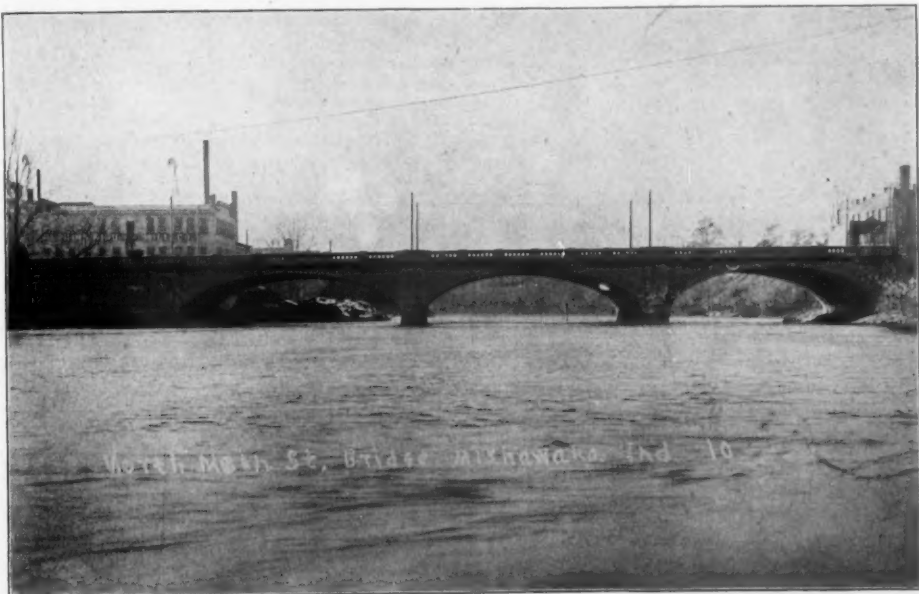
The permanency of the Roman stuccoes may be partially accounted for by the use of oil mixed with mortar. Although Vitruvius used hog's lard, an animal oil, the mortars have withstood the action of the centuries, and in places where freezing temperature occurs in winter and great heat in summer. However, the hog's lard must have been very thoroughly emulsified by the action of the hydrated lime. Portland cement was unknown at that period.

In this connection, I would like to suggest the following specification for stucco, the third or finish coat: 1 part Portland cement, 20 per cent (volume of cement) of hydrated lime, 3 parts coarse white sand. First dry mix the sand and cement and with this mix dry hydrated lime, turning each three times with shovels, rake while shoveling. Add water, turning and raking until the desired consistency is obtained. Then add 15 to 20 per cent of white oil petroleum, the oil to be by weight in percentage to the weight of the cement. A gallon of oil petroleum weighs 7 1/2 lbs. Apply this mortar while the scratch coat is damp and as soon as it is firm enough to stand the pressure or plastering. If it be desirable to tint the stucco color the oil with any lime-proof coloring water, in proportion which by experiment with small samples is necessary to give the desired tint.

A white non-volatile mineral oil is suggested for stucco and for mortar to be used in setting white marble or light colored brick, on account of the color possibilities. For concrete where the color is not essential the heavy black bituminous oils to the light non-volatile petroleum oils are successful. They are cheap and their name is legion. Do not use oils containing organic matter and positively avoid, at least for the present and until further experiments have been made, vegetable or animal oils, as they are liable to form an acid which in turn may disintegrate the concrete.

New Method of Bonding Concrete.

A new method of bonding new concrete to old was described by Frank Barber, of Toronto, in a recent article in the *Canadian Engineer*. This consists in placing bags of cracked ice on the last surfaces of concrete placed at night, thus reducing the temperature of the concrete, and, consequently, retarding its time of setting, so that on the next morning the surface is still plastic, and the concrete then placed will set in one mass with the old. The invention of this scheme is credited to O. L. Hicks, when he was contractor for a reinforced-concrete truss bridge in Ontario. As all of the members in these trusses were of relatively small cross sections, the ice bags were easily placed in position, at the end of a day's work, and it is stated that the method worked very successfully. To what extent it could be applied to heavier work is not as yet known.



NORTH MAIN STREET BRIDGE, MISHAWAKA, IND.

sion becoming thoroughly incorporated in the concrete. If the concrete is to be mixed by hand, proceed as usual and after the water has been added, the resulting mass turned and raked, add non-volatile mineral oil in proportion of 10 to 15 per cent of oil to the weight of the cement. Turn the concrete with shovels two or three times, raking while turning; the oil will quickly emulsify and become thoroughly mixed in the concrete.

If machine mixing is employed, use a batch mixer, turning a sufficient number of times to thoroughly mix the cement, sand, crushed stone or gravel and water. Then add 10 to 15 per cent of non-volatile mineral oil. Turn again the same number of times as it requires to mix the concrete. The oil will quickly emulsify and become thoroughly incorporated in the concrete.

Oils added to concrete in proportions of from 5 to 15 per cent will slightly delay the initial and final set. Increasing the proportions of oil will further retard both the initial and final set and hardening, but up to 15 per cent, from experiments thus far made, it would seem that the retarding of hardening will not be sufficient to cause the work to be uneconomical.

The tensile strength will necessarily be reduced, and with the increasing percentages of oil toughness will be slightly diminished but not in proportion to the increase in the percentage of oil used.

An extremely interesting paper was read at the meeting of the Association of American Portland Cement Manufacturers, at the Hotel Astor, New York, December 15 last, by Logan Waller Page, director office of public roads, agricultural department, Washington, D. C., on the subject of the "Possibilities of Portland Cement as a Road Material," in which he described some investigations being carried on by Dr. Allerton S. Cushman in the laboratory of the Office of Public Roads to ascertain the practicability of mixing semi-asphaltic base oils with Portland cement concrete, with the object of obtaining the desirable properties of both Portland cement and asphaltum. So far only pats and briquettes have been made; the results obtained show ample strength for ordinary work; 6-inch cubes will be tested later.

Tensile Strain Tests Misleading.

It is believed that compression tests will show greater strength than the usual relation of compression to tension. This is a matter for further investigation, and it

the tendency of keeping all but the excess water from leaving the wet neat cement or mortar. Briquettes were made, neat cement mixed with water, the water slightly in excess of that usually required, after which 10 per cent of oil petroleum was added. Pats were also made of 1 part cement, 3 parts sand mixed with water, a little in excess of what would ordinarily be used, after which 10 per cent of the same oil was added. These pats are about 2 1/2 inches in diameter and 1/4 inch thick.

As soon as made they were left in dry air and the initial and final set was found to be normal. They were never immersed in water, but remained in dry air for several weeks. No cracks occurred and they became so hard and strong that these pats, 3/4 inch thick, were very difficult to break by the use of the fingers and thumbs. After remaining in dry air for three weeks, they were put out in freezing temperature for three days, and again placed in dry air over the radiator. No cracks or checks have occurred. After remaining in dry air for a month, a test for absorption was made. A broken pat was weighed dry and found to weigh 94.64 ounces. It was then immersed in water for several hours. Upon removal from the water the surface water was quickly removed with blotting paper, the pat immediately weighed and found to weigh 99.64 ounces. Only 5.64 ounces of water was absorbed.

The fact that the pats were never immersed in water and showed no evidence of checking or cracking, and became hard, would indicate that the emulsified oil had held the water in the mortar and that such mortar was, therefore, both non-evaporative and non-absorbent, which would tend to show that concrete in which mineral oil has been mixed would not be likely to contract and therefore contraction cracks could be avoided.

Under the theory of Prof. Beuschinger, which has been demonstrated by Prof. Swain in the laboratory of the Institute of Technology, Boston, neat cement when set and hardened in air contracts, and this contraction increases with age up to a certain period, possibly six months or a year. One part Portland cement, 3 parts sand hardened in air shows contraction, but less in proportion than neat cement. The results also prove that neat cement when hardened under water shows a slight expansion, while mortar composed of 1 part Portland cement, 3 parts sand, hardened under water, shows expansion but less in proportion than the neat cement. Reducing these conclusions to figures and taking the

Concrete Culvert Forms.

One of the most important uses of concrete is the most economical construction of culverts by the road contractor. There are probably more road contractors regular readers of *ROCK PRODUCTS* than any other journal published in America, and because of the wide personal acquaintance of our staff, we have heard the culvert problem discussed from every possible practical standpoint. On several occasions in the past, we have published detailed specifications for making wooden forms, in effect wooden boxes keyed together in shape so that they can be removed after molding the concrete around them, and thousands of such culverts have been built by men who have profited by the suggestion.

About three years ago the idea began to be developed for making a mold out of sheet steel, with an internal locking arrangement to secure a rigid form for the molding of concrete and to provide for the collapsing of the mold in such a way that it can be promptly and easily removed after the concrete becomes hardened into a solid mass. This type of mold has been successfully used in laying the bores of several large sewerage systems installed in the larger cities.

Recently the Miracle Pressed Stone Co., of Minneapolis, Minn., perfected a complete system of this type of forms, which is convenient and practically adapted to the use of the contractor, in almost every size that could be needed in laying the bores of culverts. The accompanying illustrations give a pretty fair idea of these handy appliances, and show that they are now being successfully used in many places. It is one of the attractive features which these machinery builders now supply, and is sure to meet a large demand, as the most convenient contrivance for economically molding culverts.

Probably there is no feature in the business of road building that has given the contractors so much trouble as that of disposing of the water which accumulates in the ditches alongside the road. This has often been the cause of washouts before the job was finished and the means of having more than one strip which was properly built condemned by the commissioners. It was well known that the old-fashioned wooden trough, built under the road bed, would soon rot away and clog the opening for which it was designed, and thereby constitute a dam for the stoppage of the water instead of a passage for its disposal.

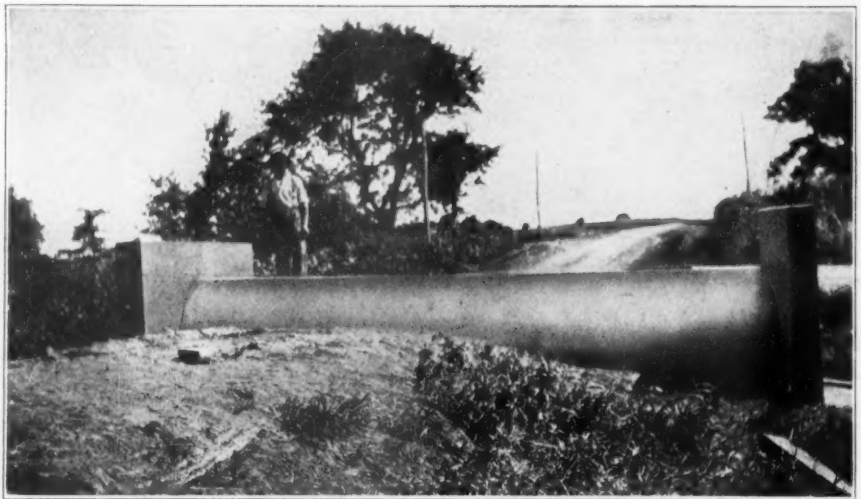
Since the road builders are now more familiar with the use of concrete than they were a few years ago, it is looked upon as a very simple matter for them to properly use this convenient device for a basis. They can mix up the right quantity of concrete, lay it in place and then as soon as the initial set has occurred build the road over it and thereby pack it into place more thoroughly than leaving the form to be withdrawn a few weeks afterward. By this process they get the best culvert, and one made in the cheapest and most thorough manner. Then, too, the result obtained is far superior to that which can be had in any culvert that can be built at more expense, either in brick or stone masonry, for either of these or the wooden culvert are not to be mentioned in comparison.

Not only is this useful to the road builder, but for the improvement of country places and private parks, in fact in all cases where underground water conduits are essential to complete the utilitarian or sanitary arrangements this type of collapsible steel form is by far the cheapest and best thing that can be secured for the purpose.

The practical minds of the manufacturers have found that their line of steel forms were not complete until they had provided every size from 12"



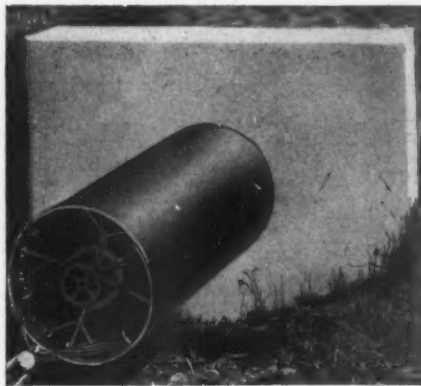
METHOD OF WITHDRAWING A COLLAPSED CULVERT FORM.



STEEL CULVERT FORMS IN POSITION FOR LAYING THE CONCRETE.

to 48" diameter, with due provision for wings, undershoots, overhangs, etc., wherever these are necessary, according to the formation of the ground.

A full line of these steel forms will be on exhibition at the Chicago Cement Show at the "Miracle" exhibit, where they will also show their full line of other machinery used in the concrete industry. This is to be taken as a notice to the road builders that the Miracle exhibit has something of particular interest to them, which is both economical, convenient and contains a profit for them. Whether you have an opportunity of visiting the Chicago Cement Show or not, the concern mentioned will be glad to furnish you with its catalogue "Z," which is devoted to this particular feature of labor-saving apparatus.



COLLAPSIBLE MOLD USED IN BUILDING A STORM SEWER.

Ornamental Work in Concrete.

In the first stage of the development of concrete stress was laid upon its strength and permanence, until many people began to believe that these qualities, important as they are, were the only ones of which the material could boast. This gave rise to a greater degree of time and attention being devoted to the working out of the artistic possibilities of concrete, and the result has been that more and more buildings and structures of various kinds which are going up are not only magnificent examples of strong building but are also beautiful and satisfy the esthetic demands of the artistically inclined.

The making of ornamental concrete work is not especially difficult, provided the molds are at hand, and inasmuch as they constitute a profitable and important branch of the concrete industry, the demand for the molds is becoming stronger all the time. Harold Simpson is doing much to take care of this demand, his molds having shown that they are as good as can be produced, and meeting every demand, both of the builder and the architect. They combine good engineering with good art, and they have become more popular than even their creator dreamed.

The accompanying cut shows a band stand in the city park at Brook, Ind. The columns and balustrades in this handsome little structure were made from Simpson molds, the concrete work as a whole being done by W. S. Cunningham, of Brook. This stand has attracted a great deal of attention, and is only one of numerous examples of the possibilities of

Simpson ornamental molds. The company's headquarters are at Columbus, O.

Concrete Pier at Long Beach.

NEW YORK, Jan. 19.—Long Beach is to have a steel and concrete pier that will compare favorably with the great steel pier at Atlantic City, which is one of the most popular features of that resort. The Long Beach pier will extend more than 1,200 feet into the ocean, a distance of about a quarter of a mile. The cost of this operation, which is being conducted by the Paul J. Rainey Pier Co., will be about \$70,000. The contractor is under heavy penalty to have the pier completed by the first of next June. On the pier is to be an immense convention hall with seating capacity of 5,000. Opposite the entrance will be an octagon-shaped theater and facilities for other amusement enterprises will be provided.

Electric trains operated by the Pennsylvania railroad from its new terminal at Thirty-second street will reach Long Beach in thirty-five minutes, thus placing almost at the door of residents of and visitors to New York amusement facilities that no other city in the world has so near at home. The pier, theater and convention hall will be models of architectural beauty and will be treated from the decorative point of view in a novel manner. The plans were made by John Russell Pope, who will supervise the construction of the building.

Concrete Border For Louisville City Hall.

LOUISVILLE, KY., Jan. 18.—Workmen are busy chipping away a border around the corridors of the city hall preparatory to facing the same for about three feet with concrete. The system employed will be the same as was used when the courthouse was faced with concrete last summer. The border will run around all of the corridors from the basement to the top, and when it is finished the plastering of the interior, which is covered with the grime of many years, will be cleaned and painted. When the job is completed the city hall will be lighter by several shades than it has been for a long time.



PARK PAVILION CONSTRUCTED ENTIRELY WITH SIMPSON ORNAMENTAL MOLDS.

CHICAGO CEMENT SHOW.

(Continued from page 44A.)

Regulations For the Show.

The show will be open to the public Friday, February 18, at 8 p. m., and each day thereafter (except Sunday) from 10 a. m. until 10 p. m.

Electric current for power is 110 volts direct, and will be supplied by the Coliseum Co. at 75 cents per day per horsepower. Arrangements for current may be made upon the exhibitors' arrival for the show. In shipping goods for exhibition, *prepay* all freight charges and send bill of lading to the Cement Products Exhibition Co. The management will see that your goods are transferred to the Coliseum and put in the proper space. Shipments should be plainly marked with the name of the exhibitor for whom they are intended, the number or the space should be shown, and they should be addressed to the Coliseum.

Storage of packing cases will be undertaken by the management free of cost. No empty cases will be permitted to remain in the booths. Care should be exercised in nailing on covers of packing cases for identification at the close of the show.

If insurance is desired, it must be placed by the exhibitor.

Passes for exhibitors and attendants will be issued upon the exhibitor's arrival at Chicago for the show. It will be unnecessary to send in advance the names for whom passes are desired. Exhibitors' reduced rate tickets, which may be purchased in lots of 100 at 25 cents each, may be ordered now. Exhibitors desiring to purchase tickets for distribution among their customers should buy them as early as possible. Remittance should accompany order.

Will Meet with Chicago Show.

MINNEAPOLIS, MINN., Jan. 19.—Chairman E. H. Cobb, of the Membership Committee of the Northwestern Cement Products Association, makes the following announcement:

"Owing to the serious illness of the president of this association, as well as the resignation of the secretary, it has been impossible to arrange for the next convention to be held in St. Paul in March, as contemplated.

The Cement Products Exhibition Co., of Chicago, made an offer to us to hold our convention in conjunction with its show in Chicago and this has been accepted by our board of directors.

"We sincerely hope that all members will avail themselves of this opportunity to visit the biggest cement show ever held, as in addition to our convention the National Association of Cement Users will also meet at Chicago. Free admission tickets will be furnished to all our members who attend."

PROMINENT EXHIBITORS OF THE CEMENT SHOW.

Readers of *ROCK PRODUCTS* have long ago become familiar with the leaders in the concrete industry through our editorial and advertising pages, where they have been telling of their new devices and their achievements for years. When you go to the Cement Show at the Coliseum February 18 to 24, you will see many familiar faces and many a glad hand will be poked at you from the interior of booths where the newest and best and most substantial will be shown, for these make up our business family all the time and the trade are in the habit of expecting this kind in the *ROCK PRODUCTS* group.

Although, of course, it is a bit early to describe in detail the exhibits upon which the eyes of the world will be focussed next month at the big show, we have overheard some whispers as to what is going to be and have managed to make out that tremendous efforts are being extended by individual exhibitors to make the show the most brilliant and attractive of any of the kind that has ever been known. The people who go to the Coliseum will not only learn all about cement, but they will learn about the most progressive people in the industry.

Meanwhile, and pending a more detailed announcement when the exhibits themselves are produced and the original ideas of the genial sales managers and advertising geni of the trade are worked out to the final touch, *ROCK PRODUCTS* takes great pleasure in telling of some of the things that may be expected.

The Cement Tile Machinery Co., of Waterloo, Ia., will exhibit its remarkably successful drain tile making apparatus. Mr. Stuart and a corps of experts will demonstrate the machine in operation.

The American Pulverizer Co., of St. Louis, will show its American ring hammer pulverizer which is used on the raw side for grinding the materials that

make Portland cement. For cement companies, this exhibit will be one of the points of interest.

The Alpha Portland Cement Company, one of the pioneers in the field of Portland cement, will keep open house in a tastily decorated booth.

The American Steel & Wire Co., Chicago, will have an effective exhibit demonstrating a few of the many uses of its wonderful steel wire reinforcing material which is well known to the leaders of the concrete industry as Triangle mesh concrete reinforcing. It has the unique endorsement of being most effective and at the same time flexible of application and most economical of cost of anything yet devised. This material has been tested most rigidly and convincingly, and is unquestionably the best system for the intelligent contractor to study for application to those branches of work which he frequently must undertake without a great deal of the engineer's assistance. Besides its other desirable qualities, it is the safest all-around reinforcing material obtainable, and the concrete reinforcement department of the American Steel & Wire Co. have provided a book which amounts to an engineering key to make the use of this material simple and profitable. Harry S. Doyle, with a corps of able associates, will do the honors at this exhibit and take care of all inquirers.

The Anchor Concrete Stone Co., of Rock Rapids, Ia., will exhibit its well known Anchor block ma-



J. P. BECK, GENERAL MANAGER CHICAGO CEMENT PRODUCTS EXHIBITION CO.

chines "which have already stood the test of time and made good with a profit for the user." Charles W. Bradley, who is incidentally the mayor of Rock Rapids, will demonstrate this excellent two-piece wall system.

The Association of American Portland Cement Manufacturers will have a booth provided with extensive literature relative to the concrete industry in all of its branches and under the direction of Percy H. Wilson, secretary of the association, an interesting lecture course on the uses of cement will be conducted intermittently as further described elsewhere.

The Atlas Portland Cement Co. will have an elaborately decorated exhibit showing the practical use of cement in the field of real art productions. P. Austin Tones, the company's manager of publicity, Edward D. Boyer, the famous eminent cement expert, John G. Evans, of Chicago, and other members of the great Atlas sales organization will participate in entertaining Atlas friends and customers.

Amatite roofing and other roofing materials as well as Tarvin now extensively used by street and road builders, will be the feature of the exhibit of the Barrett Manufacturing Co., whose home is in New York, with branches in all the principal cities.

The Cement Machinery Co., of Jackson, Mich., with Capt. Sid. L. Wiltse in command, will exhibit

the 1910 model of its systematic concrete mixer which prepares the concrete mix automatically. Besides this leader other tools and appliances well recognized by the trade will be shown.

Centrifugal Concrete Machine Co., of Chicago, will have on exhibition a standard sized machine, as well as a working model, with a collection of standard sized building blocks made on its centrifugal machine. An interesting feature will be a standard sized block made by the centrifugal process, which has been partially suspended in water for more than ten months to show the exact amount of water absorption in such a length of time that can be expected of blocks made in this way. G. A. Hancock, general manager, and others will explain the advantages of this exclusive feature.

The Century Cement Machinery Co., of Rochester, N. Y., builders of the long established Hercules block machine, will be represented by President A. L. Bradley and assistants. They will also show their power tamper, mixers, etc., which will promptly be recognized as machines of the highest merit.

The Chicago Portland Cement Co. will be in the limelight with a tasty and artistic booth, where President Fraser and Sales Manager J. U. C. McDaniel, whose smile is quite parallel with Taft's, in the cement industry, will help to make everybody feel at home and incidentally the virtues of Chicago AA will be the theme here.

The Concrete Stone & Sand Co., of Youngstown, O., will have an elaborate exhibit, in charge of A. A. Pauly, the renowned inventor of structural tile machinery and the process for making the same. Mr. Pauly will be assisted by a corps of experts, who will demonstrate the machinery and give every visitor the benefit of full knowledge of the advantages of this remarkable material. Several of the associated companies which are manufacturing Pauly tile extensively will participate in this exhibit with samples of their product and with records of the achievements which have crowned their endeavors. To the general public, home builders, etc., this exhibit is of the first importance and to the concrete industry it is the manufacturers specialty which contains the greatest future for uniform adaptation in every kind of building appropriation. Descriptive literature will be distributed and every inquirer given careful attention.

Geo. W. DeSmet, the cement specialist of Chicago, will make a large noise along numerous lines, among which Dehydratone waterproofing will be demonstrated; also Symetrex, a liquid concrete, and Vulcanite and Berkshire, snow white Portland cements, will complete the list.

The Eureka Stone & Ore Crusher Co., of Cedar Rapids, Ia., will show several of the twenty different sizes of rock crushers which have proven useful to both contractors and manufacturers in preparing the aggregate material on big concrete jobs. It is a little wonder and well worthy of consideration.

The German-American Portland Cement Works, Chicago, will have a handsomely decorated booth, where Fritz Worm, E. L. Cox and John Dugan, the genial pilots of Owl Portland cement, will participate in the great event.

Hildreth Manufacturing Co., Lansing, Mich., will give a practical demonstration of its gasoline engines, which have made good in connection with mixers and other concrete machinery in each and every instance where they have been installed. With this recognition they will unquestionably be an attractive feature.

Kelly Island Lime & Transport Co., Cleveland, O., will be on hand with a demonstration of its Tiger brand of hydrated lime when used in the concrete mixture for waterproofing purposes, as well as for the mixing of mortars for exterior and interior.

Kent Machinery Co., Kent, O., will demonstrate the well known Kent continuous mixer, which has an established place in the industry. "Simple, durable, reliable and moderate in price" has been the slogan under which Kent machines have always gone forth to delighted customers.

Kent Mill Co., of New York, will exhibit its Maxecon revolving ring pulverizer. This machine is extensively used in Portland cement plants and in other places where extremely fine grinding is the essential characteristic. Affable Horace G. Kimball will be on hand to make the "ring wobble."

The Lehigh Portland Cement Co., as usual, will have a pleasant resting place for its many customers, with attractive surroundings and with pictorial literature

of convincing force. Frederick E. Paulson, the head of the Indianapolis office, and the irrepressible Bert Swet, will be on hand with others to assist, no doubt, in the entertainment of Lehigh patrons and friends.

The Marblehead Lime Co., of Chicago and Kansas City, will demonstrate the merits of their Crown brand of high calcium hydrated lime as a densifier for concrete mixtures, and with convincing literature to be a reminder after the show is over. Douglas Howe and Harry Graham will be in charge all the time and will be supported by the members of the company occasionally.

The Marquette Portland Cement Co. will have a handsomely decorated booth, which, as usual, will be the scene of a continuous pleasant reception during the show. Its slogan, "A perfect record for ten years," is well known in the concrete industry.

The Marsh Co., of Chicago, the reliable machinery builders, will exhibit one of its large rock crushers and there will be experts on hand to explain why it is a money saver in producing the concrete aggregate. It will also show the Marsh mixer, which is one of the machines that have made good all over the country, and is held in high regard thereby.

Meacham & Wright Co., of Chicago, leading dealers in cement, will have an elegantly decorated booth, and will receive its many friends, both personally and in its capacity as local representatives of Lehigh, Blanc, Utica and other brands of cement. Messrs. Meacham, Wright, Blount and Foster will help entertain, while the redoubtable Sully and Frank Reed will always be in evidence.

The Miracle Pressed Stone Co., of Minneapolis, the old established concrete machinery house, will have an extensive exhibit as usual. Besides its double staggered block machine, it will show Miracle mixers, collapsible steel forms for culverts, conduits, etc., drain tile machinery and a full line of ornamental molds. O. U. Miracle and R. O. Miracle, with a large corps of experts, will demonstrate the Miracle line to all visitors.

The Milwaukee Concrete Mixer & Machinery Co. will exhibit for the first time, Capt. W. J. Roseberry's masterpiece, in the new Milwaukee concrete mixer, which has a globular shaped mixing compartment and is provided with automatic water gauge and automatic loading and discharging device. It is a winner on sight and unquestionably will attract the attention of all the mixer users who know the requirements of a high class service and reliable machine.

The National Waterproofing Co., of Chicago, will give a demonstration of its waterproofing material and will subject tests as final proofs of its efficiency in this particular line.

The Peerless Brick Machine Co., of Minneapolis, will show the little wonder which has triumphed in many a cement show and still keeps an unchallenged place of its own. Lew Thayer, the president of the company, with his most bewitching smile and cordial manner, will demonstrate the Peerless, as he has done all over the United States and foreign countries—the one-man machine that makes 10,000 bricks a day.

H. B. Sackett Screen & Chute Co., of Chicago, will show a number of its steel cars adapted to the requirements of the users of cement, both in the fac-

tory line and in heavy contract work. The line really meets a long felt want in the industry.

The Sandusky Portland Cement Co. will have an artistically arranged booth to exhibit the higher attainments of finished concrete work. The long famous Medusa waterproofing compound will be practically demonstrated as a material to keep the water out of the finished concrete work. Their exhibit is always one of special attraction.

The Sharon Steel Hoop Co., of Sharon, Pa., and Chicago, will have a miniature of a new type of reinforced concrete silo, which is built without wooden forms or false work of any kind. This will be the newest and one of the most attractive features of the show. They will also exhibit reinforcing steel and steel studding for use in connection with expanded metal. Harry T. Gilbert, the sales manager, supported by an able corps of entertainers, will be present to hand out convincing literature on these and other subjects.

Simpson Cement Mold Co., of Columbus, O., will have a full display of standard porch and ornamental molding devices which have long been recognized as one of the established and standard features of modern concrete work. Harold G. Simpson, with an able corps of assistants, will explain the simplicity economy and substantial profits that are made a part of well-regulated concrete manufacturing establishments by the use of Simpson molds, used in every part of this and foreign countries. Simpson molds have made good with every user and their attractive exhibit will be the center of great interest in this as it has been in many concrete exhibitions in the past.

The T. L. Smith Co., of Chicago, will exhibit Symonds rock crushers and the Smith concrete mixer, both of which are well known and will be recognized as standards in their respective lines. The mixer that has mixed more concrete than any other, and the smallest crusher that does the most work, will naturally draw the attention of the practical visitors of the show.

The Sturtevant Mill Co., Boston, Mass., will show as an interesting specialty in its "Newaygo twang screens," which is destined to make the finest separation of materials that was needed in the arts. This screen has been effectively used on the finished side of the grinding process of Portland cement as well as in plaster and in lime manufacturing plants. This is one of the things which will be particularly interesting to the manufacturers in these lines. Sturtevant crushers and ore breakers will also be the topic of conversation and investigation at this booth. All the machines in the whole Sturtevant line are known to be reliable and to have high merit.

Taylor Iron & Screen Co., of High Bridge, N. J., the makers of Tisco manganese steel for the working parts of crushers and other abrasive purposes, will have a booth for the entertainment and instruction of its friends and patrons.

The Universal Portland Cement Co., of Chicago and Pittsburg, will have an elaborately decorated division of the show and conduct a continuous reception and assume the responsibility of everyone finding their choice in the big exhibition. B. F. Affleck, the sales manager, and B. H. Rader, eastern sales manager, with a large corps of assistants selected from the extensive sales force of the Universal Co., will do

the honors of this great establishment. President E. M. Hagar, of this company, is also president of the exhibition company and will throw his personal magnetism into the conduct of the show as a whole, as well as the section which represents his own company. Morris Metcalf, the assistant to the president, and J. P. Beck, the general manager of the exhibition company, also connected with the Universal Co., will be personally prominent here and in the great burden of work which such a mammoth occasion makes necessary. Here is a place where cordiality will be unmeasured and something doing every minute.

The U. S. Gypsum Co. will show a number of their famous building specialties, such as Sackett plaster board and Gypsenite plaster board system of fireproofing. They will have interesting literature on the subject of the interior finish of every type of building with the highest grades of hard wall plaster which is manufactured by them and distribute instructive literature on this important subject. Its booth will be a perfect gem of art and made entirely of their own products as models for the users, who will be the principal visitors. Its extensive sales force is said to contain the tallest and shortest salesmen in America, although the popular and genial C. C. Quincy, may not have recovered his health sufficiently to attend the show. W. E. Shearer, of Cleveland, and many another of the accomplished gypsum staff will be on hand to do the honors.

The Wadsworth-Howland Co., of Boston, Mass., will exhibit practical demonstrations of its well-recognized Bay State brick and cement coatings, which have achieved a very general and well-deserved popularity, both with the contractors who use it in practical work and the specifying architects who find these goods the best path out of what has been known as a sea of troubles. E. A. Foster, with a twinkle in his eye and a ready answer for every visitor, will be on hand to greet the comers.

The Williams Patent Crusher & Pulverizer Co., of Chicago, will exhibit the well-known Williams mill, which is used by a very large number of the Portland cement manufacturers of the raw grinding side of the mill. This wonderful mill is also used for many other purposes where very large outputs of crushed rock ore, etc., are required. Both the Messrs. Williams will be on hand to explain the advantages of their mill and to meet their many friends in the trade.

The Wolverine Portland Cement Co., of Coldwater, Mich., will keep open house to its friends and patrons with Wm. E. Cobean, the accomplished sales manager of the company, in charge. He will be assisted incidentally by several of the officers and members of the company occasionally and will distribute attractive literature expressing in pictures some of the places where Wolverine cement has made good and dependable concrete work.

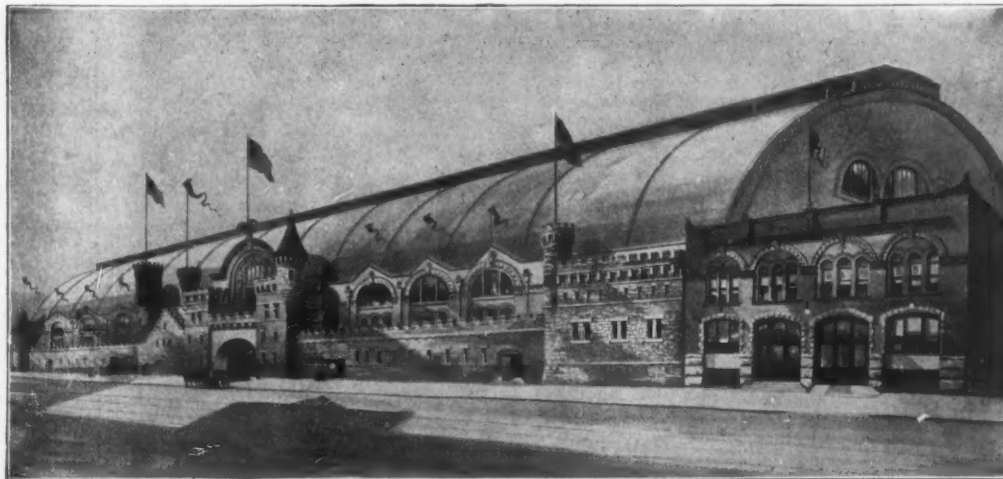
Wisconsin Lime & Cement Co., Chicago, will have an extensive exhibit, showing some of its leading specialties, amongst which are Aquabar for waterproofing concrete, and Beaver board for the finishing of interiors for plain and decorative plaster work. Charles Dynes will have charge of the exhibit and will be assisted from time to time by members selected from the extensive sales force of this company, who will be glad to meet their friends and patrons amongst the contracting and building patronage attending the show.

ROCK PRODUCTS can always be found right in the center of the great exhibition and there is a cordial welcome to every subscriber of the paper to come first to our booth for any information with regard to the exhibition which may be useful to them. It is our earnest desire that each and every one will feel that he is entitled to be quite at home. The whole show is ROCK PRODUCTS, first, last and everywhere, but right in the center is a little spot for the special headquarters of the staff men who make the paper to meet their associates and companions. Here is where you can never get in wrong because it is you.

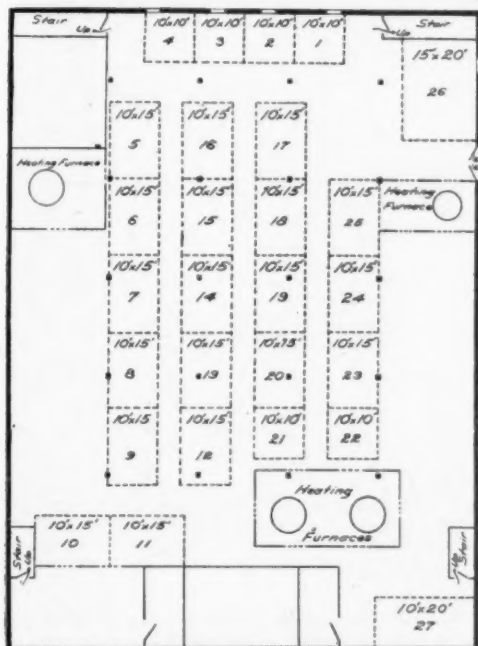
Considerable foreign cement has been arriving lately, most of it on Puget Sound, but the amount is not sufficient to make any impression on the market, and very few builders now give much consideration to the foreign article.

More Kilns For Lehigh Co.

FORT DODGE, IA., Jan. 17.—The Lehigh Sewer Pipe & Tile Co. has begun the enlargement of its plant to one-third more than its present capacity. Work has begun on four 30-foot kilns, which will give them sixteen in all, with a capacity of 93,000 bricks in three days, whereas they have been producing only 65,000. It is hoped to complete the improvement by early spring.



CHICAGO COLISEUM, WHERE CEMENT EXHIBITS ARE HELD.
CORNER WABASH AVENUE AND FIFTEENTH STREET.



Ground Floor, Auditorium, Cedar Rapids, Ia.

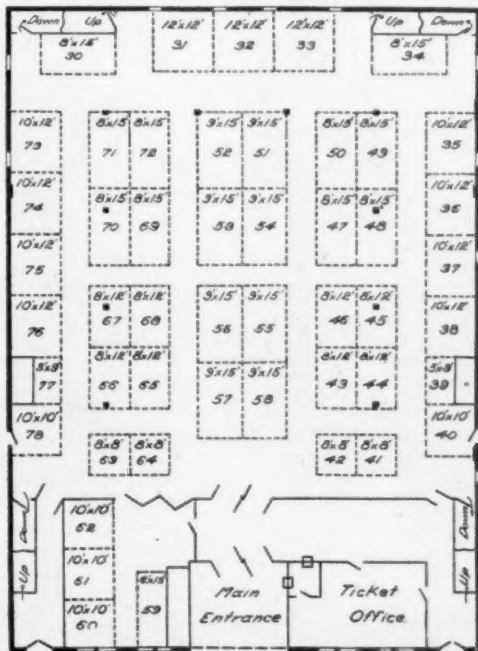
Iowa Cement Users to Meet.

The sixth annual convention of the Iowa Association of Cement Users will be held at Cedar Rapids, March 9 to 11 inclusive. These conventions have come to be a fixture and are looked forward to by the cement users throughout Iowa and the adjoining territory.

That the association has accomplished much good goes without saying. The conventions are always largely attended and this year's gathering promises to be larger than ever. The desire for knowledge among the users of cement is growing every day and at these conventions the leading men in the industry meet with the men who are on the jobs with mutual profit.

As usual a strong program of papers, addresses and discussions of the materials relating to cement is being arranged, as well as illustrated lectures. Questions may be asked and answers will be given by the best authorities in the business.

As is customary, there will be space for the exhibitors where the latest machinery and equipments will be shown. The large Auditorium in Cedar Rapids contains a little short of 10,000 feet of space, which will be utilized for this purpose. Those wishing to make an exhibit may communicate with the secretary, R. A. Williams, at Ames, Iowa.



Main Floor, Auditorium, Cedar Rapids, Ia.

Change in Nebraska Headquarters.

OAKLAND, NEB., Jan. 17.—Secretary-Treasurer Peter Palmer is notifying the members of the Nebraska Cement Users Association that during the coming convention at Lincoln (February 1-4) the headquarters will be at the Lincoln hotel instead of the Lindell, as previously announced. The change is made necessary by repairs under way at the Lindell.

Tuesday Evening February 1.

Formal opening, convention hall, Lincoln hotel.
Address of welcome by W. A. Selleck, president Commercial Club, Lincoln, Neb.
Response.
Business session.
The Cement Block—Tom Dougherty, Auburn, Neb.
Discussion.
Waterproofing Cement Blocks—Elmer E. Blackman, archeologist, State University.

Wednesday Evening, February 2.

Art in Cement Stone—C. R. Lehrack, Lincoln, Neb.
Discussion.
Practical Hints to Advance the Cement Industry—Charles D. Warner, Cement World.

Thursday Evening, February 3.

Concrete Culverts and Country Bridges (Illustrated)—C. A. P. Turner, M. A. Soc. C. E., Minneapolis, Minn.
Concrete Roadways—Benjamin Franklin Lippold, Rock Products.

Friday Morning, February 4.

Ten Minute Talk on Cement Tile—G. F. Lillie, North Bend, Neb.
Discussion.
Concrete Paving for Nebraska—H. C. McCord, Columbus, Neb.
Business session—Report of committees, election of officers.

Friday Evening, February 4.

Closing exhibition at Auditorium.

Introduction of Centrifugal Force.

Every distinct advance in the concrete industry is first announced and promulgated through the columns of ROCK PRODUCTS, and in the opening number of the year 1910 there is no exception to the rule. A new factor is announced on another page of this number in the manufacture of concrete building material. Centrifugal force, that powerful principle of physics, has been successfully applied to the manufacture of concrete blocks. While the invention has been developed and perfected along very conservative lines on account of the radical changes which it introduces into the established ideas that have been in vogue for a long time, since the first machine was really making the 8x8x16" standard block fully two years ago, it is still a new idea to many of our readers. The machine is built by the Centrifugal Concrete Machinery Co., of Chicago, and as the name indicates it owns basic patents completely covering the method and process of molding plastic materials by the use of centrifugal force. The accompanying illustration gives a very clear idea of the appearance of the machine. It will be seen that it consists of a rotating frame holding six molds into which a very wet mixture of concrete material is poured and then the frame made to revolve rapidly around a shaft. The result applies automatically to the contents of the mold tremendous pressure by reason of the high speed of its revolution. All of the excess water is drawn off by the process of atomization while the water necessary for crystallizing the concrete is all left within the mold. In an astonishingly short space of time, not more than one minute, the six blocks are practically finished and ready for removal from the molds. In a few hours the initial set has taken place and if the blocks are cured by steam, as is now well understood in the industry, they are ready to go into finished work the following day.

The blocks made by centrifugal force are found upon examination to be to all intents and purposes a waterproofed product. That is to say, they will absorb but very little water upon total immersion and make a very hard and durable block. A staff representative of ROCK PRODUCTS carefully examined standard sized blocks that were more than two years old made on one of these machines and in every respect these blocks were found to be as has been stated. At the Chicago cement show this company will exhibit one of its full sized machines and many samples of its product and also a working model to demonstrate the centrifugal principle.

Concrete Piles Used at Springfield, O.

SPRINGFIELD, O., Jan. 18.—In using concrete piles to secure a foundation for its new depot the Big Four railway has introduced into this city for the first time this modern method of obtaining a substantial foundation for large buildings in soil that is soft and boggy. Until recent years the wooden pile has been used in nearly every case where the soil was too soft to carry the weight of the building to be imposed upon it. But now, since concrete has come into such general use as



L. E. PORTER, PRESIDENT NEBRASKA CEMENT USERS' ASSOCIATION.

a construction material, the superiority of concrete piles has successfully been demonstrated. When concrete piles were first invented wooden piles had been used for so many years that many engineers and architects considered them standard, and at first hesitated to use piles made of concrete; however, the use of concrete piling has increased rapidly each year, as its advantages have become more generally recognized.

Owing to the fact that, unless wood is constantly kept saturated with water it will decay in a short period, the building laws of all cities require that wooden piles should be cut off at, or below, the level of the water table. Whenever this level is a considerable distance below the surface of the ground, deep and costly excavation, sheathing and pumping are necessary in order to carry the foundation down to the tops of the piles. Such a foundation, with its deep excavation, and the excessive amount of stone or concrete required for its construction, is necessarily very expensive.

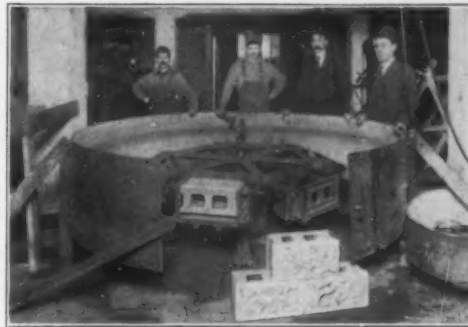
There is a danger in cutting off wooden piles at the exact level of the ground water, due to the fact that frequently sewers or street drains are subsequently installed, or dams removed near the building, which may appreciably lower the level of the water table. Many buildings in Boston have been caught in this way, and before many years have passed it will be necessary to reinforce their present foundations.

All types of concrete piles have the advantage of their point of "cut off" being independent of the level of the water table; that is, they can be carried to any height desired. Most concrete piles have a larger carrying capacity than wooden piles.

While the initial expense is a little greater than that of wood, there is economy in the end as the concrete piles last longer, and will sustain a greater weight. The piles used here by the Big Four railway are the reinforced type, will sustain a great weight and will not slant as a steel point in using in the driving.

Officers of Hydraulic Stone Co.

WAYNESBORO, PA., Jan. 18.—Directors of the Hydraulic Stone Co. have organized for the ensuing year by the reelection of these officers: President, Daniel S. Leshar; vice-president, D. W. Hess; secretary and treasurer, H. K. Gearhart.



CENTRIFUGAL BLOCK MACHINE.

Cash Prizes For Concrete Block Makers.

Cash prizes are to be awarded by the Century Cement Machine Co., of Rochester, N. Y., for photographs of buildings constructed of blocks made on the Hercules machine. It is the intention of the company to issue an elaborate portfolio immediately after the close of the contest. This portfolio, containing cuts of the different types of buildings, will be sent free of cost to all who contribute photographs. It is the desire of the Century Cement Machine Co. to make this portfolio one of the finest ever offered by any concern manufacturing block machinery.

All operators of Hercules machines are requested to send in photographs of work without delay, as the contest will be decided at the Cement Show to be held in Chicago in February.

Hercules machines and their product are becoming so well known that the Century Cement Machine Co. often receive letters from architects and engineers asking as to the location of the nearest plant where Hercules stone may be secured. This enables the manufacturers to often assist users of their machines in the securing of good-sized contracts.

The prize contest, together with the portfolio, should do much to assist operators of Hercules machines in the securing of contracts, especially those who are represented in the portfolio, which will be in the hands of architects and engineers everywhere. Full information regarding the contest can be had by addressing the Century Cement Machine Co., Rochester, N. Y.

Laying Concrete With Compressed Air.

Placing concrete with compressed air is the underlying principle in the system of monolithic construction which Thomas A. Edison is advocating. Mr. Edison asserts that compressed air, properly handled, can drive concrete through a pipe, around "ells" and turns, horizontally and vertically, with speed and dispatch and deliver it in the forms in good shape.

This system was used in 1907 on the filtration plant at Toledo, O., by the Pneumatic Concrete Conveyor Co., of that city, under the direction of John H. MacMichael, the active head of the company. A 4-inch pipe, 350 feet long, ran from the mixer to the spot where the concrete was to be placed, and through this pipe the mixture was forced, a pressure of from 90 to 100 pounds being used. By this means 5 cubic feet of concrete was driven the 350 feet in less than five seconds. The mixture was 1 part cement, 2 sand, 4 limestone, the latter passing through a 1-inch ring.

It was decided that, in order to reduce the friction, and also the danger of clogging, it would be better to use a larger pipe of shorter length, and work at a lower pressure, say 50 pounds.

Battleship Made of Concrete.

WASHINGTON, D. C., Jan. 18.—One of the most unusual defensive works in the world has been erected by the War Department on El Fraile island, one of the four islands which form a chain across the mouth of Manila bay. All these islands have been strongly fortified in order to prevent a foreign fleet from entering the bay.

On El Fraile island has been built a fixed battleship of concrete having two steel turrets, in each of which are mounted two 14-inch guns. These turrets can be trained in any direction by the gun crew inside.

The original plan for the fortification of El Fraile contemplated the enlargement of the island, which is small and narrow, and the establishment of an ordinary fort. This plan, however, was abandoned in favor of the concrete battleship, which has been practically completed.

The 14-inch guns mounted in turrets on El Fraile are operated by the general fire control station on Corregidor island, where the principal fortifications of the mouth of the bay are located.

Concrete Chimney at Chillicothe, O.

CHILLICOTHE, O., Jan. 17.—The new concrete chimney erected at the plant of the Mead Pulp & Paper Co., by the Weber Chimney Co., of Chicago, is completed and in operation. This chimney is 175' high above grade and the inside diameter at the top is 9'. It is built of reinforced concrete throughout and both stack and foundation are one solid piece of concrete.

The mixture for the foundation consisted of one part cement, three parts sand and five parts of gravel, and that for the shaft of one part cement, 2½ parts of sand and four parts of gravel. The reinforcement of the foundation consists of two layers of steel bars. The lower net of these consists of a number of bars laid diagonally to the side, and above this is another net with bars laid parallel to the side. The reinforcement of the shaft of the chimney consists of vertical bars and horizontal rings. The horizontal rings are placed fourteen inches apart and the vertical bars go down into the foundation, and where placed when the



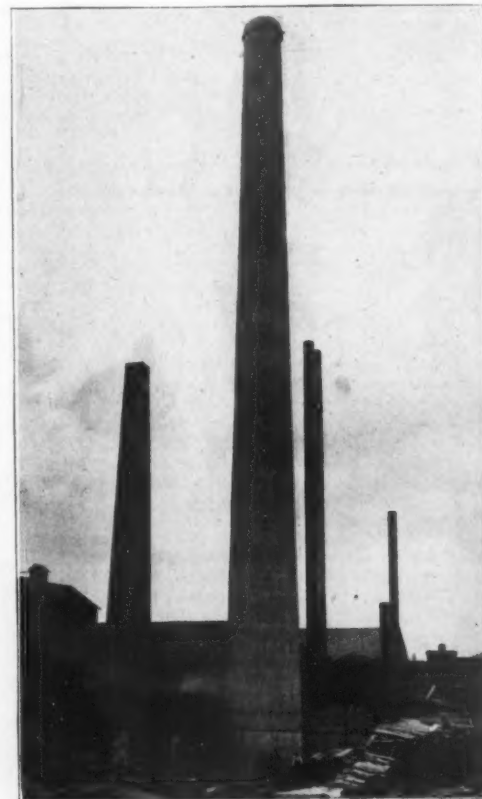
R. L. HUMPHREY, PRESIDENT OF THE NATIONAL ASSOCIATION OF CEMENT USERS.

concrete for the foundation was laid, therefore forming a perfect anchorage.

The compression on the concrete does not run over 400 pounds and the stress on the steel not more than 16,000 pounds. This chimney is designed to stand a wind pressure of 50 pounds per square foot, which is equal to a wind velocity of about 100 miles an hour, and is also designed to stand temperatures up to 1500 degrees F.

Gulf Concrete Co., Galveston, Tex.; \$100,000 capital; Alf. Bryde and Daniel Wallis, organizers.

Portland Sand Co., Portland, Ore.; \$25,000 capital; A. L. Carson, Anton Giebisch, A. T. Lewis.



CONCRETE CHIMNEY AT MEAD PULP & PAPER WORKS, CHILLICOTHE, OHIO.

NATIONAL CEMENT USERS.

(Continued from page 44A.)

final disposition. Harry F. Porter, consulting engineer, Bridgeport, Conn.

EVENING SESSION—8 O'CLOCK.

Reinforced concrete columns. Robert A. Cummings, Pittsburg, Pa.

Reinforced concrete columns. Peter Gillespie, lecturer, University of Toronto.

Use of concrete in protecting wooden pile against toro. Ralph Barker, assistant state engineer, San Francisco, Cal.

About the Standard Specifications.

The sixth annual convention of the National Association of Cement Users at the Cement Show February 21 to 25 at Chicago will without exaggeration be the greatest gathering of its kind ever held. Chicago being a great railroad center and the fact that the railroads have made special rates, should attract not only every member of the association but many others who should join.

This association during the six years of its existence has done much to encourage the intelligent use of cement all over the country. It has built up the improvements of the leading workmen of the industry at its meetings and they look forward each year with keenest interest to the annual convention.

The number of papers that will be read at this convention is far in excess of any of previous occasion, and it is probable that the extra day will hardly be sufficient for their presentation.

The matter of standard specifications will come up for discussion and is one of vital importance to every cement user. The following subjects have been submitted to the membership according to the constitution of the association and those who are particularly interested are hereby notified to be present to take such action as they find advisable.

1. Proposed Standard Building Regulations for the Use of Reinforced Concrete.
2. Proposed Revised Standard Specifications for Portland Cement Sidewalks.
3. Proposed Standard Specifications for Portland Cement Curb and Gutter.
4. Proposed Standard Specifications for Concrete Street Pavements.
5. Proposed Standard Specifications for Plain Concrete Drain Tile.
6. Proposed Standard Specifications for Architectural Concrete Blocks.

Lectures on Uses of Cement.

In connection with the exhibit of the American Portland Cement Manufacturers' Association, Secretary Percy H. Wilson has arranged for a series of lectures on topics of interest to cement users. These will be delivered by H. R. Moyer, of the Raymond Concrete Pipe Co.; Albert Moyer, Mr. Ferguson and Secretary Wilson, and probably one or two others.

Cement Sewer Pipe Factory.

PORTLAND, ORE., Jan. 15.—George Heusner, of the Kenwood Land Co., has completed negotiations whereby another industry of considerable importance will be located at Kenton. The Glazed Cement Sewer Pipe Co., manufacturer of sewer, drain and tile pipe, has secured a site in Kenton and let the contract for the erection of a factory building 200 by 200 feet. The building will be a 1-story frame structure, and will be located at the corner of Derby street and Columbia boulevard. The company will employ from 50 to 60 men at the start, and the number will be increased later.

New Incorporations.

Cement Mfg. Co., Jersey City, N. J.; \$2,000,000 capital; James B. Stafford, Wm. C. Dodge, F. Carroll Taylor; all of 140 Nassau street, New York.

Chicago Art Marble Mfg. Co., Chicago; \$10,000 capital; Walter H. Jacobs, Blackburn Esterin, George A. Kelly.

Flower City Concrete Construction Co., Rochester, N. Y.; \$100,000 capital; Henry C. Babel, George F. Love and Thos. Hough, Jr.

Kay Concrete Mold Co., Brooklyn, N. Y.; \$50,000 capital; John R. Kay, Walter W. Kunze and John J. Halshuh.

Buffalo Monolithic Concrete Co., Buffalo, N. Y.; \$100,000 capital; Henry C. Babel, Flavius G. W. Sudsow, and James E. Allard.

Joliet Concrete Machinery Co., Joliet, Ill.; \$25,000 capital; James Straka, Eneshia Meers, Maurice F. Lennon.

Staple Concrete Post Co., Columbus, O.; \$100,000 capital; John C. Harris, H. D. Spain, Fred S. Clark, G. A. Dobb.

Fred Pierce Sand Co., Fulton, N. Y.; \$60,000 capital; George F. Stackhouse, East Orange, N. J.; Albert M. Le Messieur, Syracuse, N. Y.; Claude E. Guile, Fulton, N. Y.

Side Talk

The Cosmo Lubricating Co., of Chicago, was organized two years ago to manufacture and market lubricating oils of a superior quality. This company was the result of years of study and experiment by the Weigand brothers and their father. They have a number of specialties of great interest to the cement and stone and rock-crushing trades, one of these being an oil, which is fireproof and will not burn under any conditions, and it is said will absolutely prevent hot bearings, something of great interest to the rock-crushing industry. It has also a cold test of 14 degrees below zero for winter work. This means that rock-crushing plants can be run all the year, and need not shut down in the winter. This oil has the great viscosity of 625, which gives it the highest wearing qualities. It will outlast other oils 40 per cent, its manufacturers assert.

Following is a copy of a letter regarding tests made by the State Laboratory of New Jersey:

D. E. Patterson, Esq., Treasurer the Cosmo Lubricating Company, Chicago, Ill.

Dear Sir: A few days ago I went to Trenton, N. J., to witness a series of tests on your bearing oil and your Cosluco cylinder oil. The tests were conducted in the state laboratory under the supervision of H. M. Herbert, of the state board of health.

All of the tests were entirely satisfactory, although none of the thermometers registered high enough to obtain the flash temperature of the bearing oil. However, it sustained all the claims made for it.

The cylinder oil flashed at 600 degrees and was allowed to burn for about one minute, after which it was cooled off with ice and salt, a freezing mixture. During this entire process the oil did not carbonize. Its original efficiency was not in the least impaired.

The experiments were conducted by Messrs. Johnson and Fowler, both of whom are regularly employed in the laboratory by the state. They both agreed that the tests clearly indicated that the oils were superior products, and unusual in character.

Yours very truly,

(Signed.) F. J. CURNICK.

This company also manufactures a grease possessing the same qualities. It will not harden in the coldest weather. This grease will also keep the bearings cool under the most severe conditions. The plant is located at 155-161 North Ada street, Chicago, and the New York office is at 25 Broad street.

The Cosmo Lubricating Co. is establishing agencies all over the American continent and throughout Europe.

Everyone acquainted with the uses of concrete knows that unless it is impervious to water it loses its value as a desirable building material where dry walls or surfaces are essential. The salts and sulphides in the concrete, stimulated into action by the moisture, exude and burst forth in a disfigurement which is not only unsightly but is in itself a generator of dampness and a conducting agent of degeneration. Water will find its way through the walls, making a damp interior, causing the plaster to fall from wall and ceiling. In a climate of varying temperatures this water is liable to freeze, expand and damage the entire structure.

The problem of waterproofing concrete has been a thorn in the side of the engineers and architects for so long that one of our most prominent engineers, when asked how to waterproof a certain piece of concrete work, wrathfully answered, "Fill up the holes." This the National Waterproofing Co., of 612 Harvester building, Chicago, manufacturers of "Te-Pe-Co," claims to be able to do, and its claims are based upon good reasoning. "Te-Pe-Co" is a mineral compound, held in suspension in liquid form for purpose of application only. This liquid is of a highly penetrative nature, and carries the mineral substance into the pores of the concrete and masonry. Within a few hours the liquid evaporates, leaving every one of the millions of pores filled with a mineral substance which hardens and precludes the entrance of water or moisture in any form. Those who have made practical tests of "Te-Pe-Co" have been favorably disposed regarding it, and the manufacturers show some strong endorsements from engineers, architects and builders.

A commendable quality of "Te-Pe-Co" is that it is ready for use as shipped from the factory. It is colorless and easily applied with a brush, just as paint, and no expert attention is necessary.

Another development of interest in this era of economical construction is the advent of "Beaver Board" and its many uses for interior walls and ceilings and in decorations. Those conversant with the danger of plaster falling from concrete ceilings and walls know that it is impracticable to lay plaster

on the concrete itself and expensive to lath for a foundation for plaster. "Beaver Board," for which the Wisconsin Lime & Cement Co., 607 Chamber of Commerce, Chicago, is general agent, can be attached direct to the concrete by the use of "Fibercrete," making an artistic and safe wall covering and eliminating the danger of falling plaster.

"Beaver Board" is made so that it can be placed on the wall in any conceivable manner from the plain wall to panels of various sizes and shapes, so that, when painted and decorations are added, an endless number of beautiful effects, limited only by the decorator's ability, is possible.

There is also a line of veneers which, when used with "Beaver Board," give the effects of valuable woods, and can be detected from the genuine only by an expert. When chemically treated so as to make it fireproof, this wall enables the builder to enjoy the lowest possible insurance rates.

Another of the Wisconsin Lime & Cement Company's specialties is "Aquabar," one of the best waterproofings on the market. "Aquabar" is a hydrate in the paste form that, when dissolved in water at the ration of 1 to 24, forms a perfect solution, which is used instead of plain water, as in the ordinary mix. Thus the hydrate reaches every part of the mixture, and when the water dries out leaves the minute particles of "Aquabar" in the concrete, which crystallizes and seals all the voids.

The Wisconsin Lime & Cement Company's exhibit at the coming cement show in the Coliseum, Chicago, where they will demonstrate the invaluable qualities of both "Beaver Board" and "Aquabar," will be worth seeing.

The Keystone Driller Co., of Beaver Falls, Pa., received at the Chicago office an order of four additional Keystone traction well drillers from the Dolese & Shephard Co., after it had used one at the Gary quarry for two months. The company also placed an order for one Keystone driller to be equipped with an electric motor, making six machines that will be shipped to the Gary, Ill., quarry.

These machines will drill 5½-inch holes to a depth of 42 feet, this being the depth of the quarry, 16 feet from the face and 16 feet apart. After these holes are loaded with dynamite and shot, a steam shovel can handle the material.

The machines will take the place of air drills now in use, on account of getting better results, putting the largest amount of powder in a large hole, at the bottom, where it requires the greatest force to break the ledge. Besides this, it is said to be a less expensive method of doing this class of work.

The Chicago office also received an order for two machines from the Illinois Improvement & Ballast Co., formerly the Federal Stone Co., for its quarries at La Grange, Ill.

Waterproofing is one of the most important in the manufacture of concrete blocks or wall exposed to moisture. Concrete must be impervious to moisture or it makes an almost worthless structure. It is therefore up to the concrete contractor to make his wall or blocks as near waterproof as possible. There are numerous materials on the market which applied in various ways are said to meet this demand. One of them is Rex waterproofing, made from a formula owned by the Rex Cement Stone Waterproofing Co., of Ottawa, Kan., of which I. W. King is the president. The company sells the formula so that the operator can purchase the ingredients at small cost and prepare the material himself. The company does not manufacture or sell the material, but to anyone who is interested it will send a sample of concrete which has been treated with the material. It is a solution which can be applied either by brush or spraying it. In the latter way it can be used in about one-tenth the time usually required.

The Inter-State Equipment & Engineering Co., selling agent in the Chicago district for contractors' equipment made by many leading companies, has removed its offices to the Old Colony building, Chicago. This company consists of Messrs. F. B. Wright, president; W. B. Louer, vice-president, and George D. Smith, secretary and treasurer. Mr. Smith was for several years the secretary of the Contractors' Supply & Equipment Co., of Chicago, with which Mr. Wright was also connected. The Inter-State Equipment & Engineering Co. also handles second-hand and rebuilt contractors' equipment and stores equipment on a rental basis.

The Clinton Metallic Paint Co., of Clinton, N. Y., manufacturers of metallic paints, mortar colors, roof cement, furnace cement and other specialties, is sending to its customers a neat little barrel, designed as an ash receiver, match box or pin holder and also as a paper weight while being used for any of the above purposes.

The increase in the business of the Harold L. Bond Co., of Boston, has led it to move to 383-391 Atlantic avenue, where a large stock of contractors' supplies will be carried in order that prompt shipments may be made.

The Chicago Belting Co., which has both offices and factory in Chicago, has recently announced to its patrons and friends that it has become permanently located in its new modern fireproof factory. The building is five stories in height and built of reinforced concrete. The company has doubled its capacity, and now has a plant which is a model in all respects. The inspection of its friends is invited.

The new catalogue of the company is a handsomely gotten up publication, containing numerous illustrations and describing the process of manufacture from the hide to the consumer. The makeup of the catalogue, as well as the new plant of the company, reflects great credit upon the management of the concern.

The new catalogue of the Eureka Stone & Ore Crusher Co., at Cedar Rapids, Ia., is an interesting publication, and elucidates the machines made by the company and illustrates their operation in the most interesting and convincing way possible. The company manufactures stone, coal and ore crushers, and letters from those who are using them are reproduced, saying that they have given perfect satisfaction and have done whatever has been asked of them. Some drawings showing the plan of operation are given, and the field in which the crushers are available is well covered. For those who use crushers of any description the company's catalogue will be a valuable handbook.

The Superior Portland Cement Co., with mills at Superior, Ohio, and offices in Cincinnati, tells all its secrets in a descriptive booklet now in press. In other words, the Superior people hide nothing, telling how their product is made, of what it is made and why it will last for ages. The reader takes a little journey to the company's mill, where he is entertained by J. B. John, who built and operates the plant. The trip is illustrated in an interesting way with fine half-tones, and has an educational trend without being too technical or too involved in the science of the subject. The idea is to tell the scientific story of Superior cement in a popular way. The booklet will be mailed free to those who ask for it.

There are probably few users of building materials in the country who are not already familiar with the excellent reputation of the "Red Brick" brand mortar colors manufactured by the Ricketson Mineral Paint Works, of Milwaukee. These colors are made from the purest Bessemer ores by a special process which removes all the oxides that will not stand weathering. So jealously has the purity of these colors been guarded that in the somewhat more than twenty years during which they have been used and marketed not a single case of cracking or fading has been reported. The company has recently gotten out a snappy little novelty folder, illustrative of this point and showing the range of the line.

Announcement was recently made of the consolidation of the Arthur Koppel Co. and the Orenstein & Koppel Co., to form a new company known as the Orenstein-Arthur Koppel Co. It is stated that the new corporation has a combined capital of \$6,500,000 and a surplus of \$2,000,000, making it the largest company in existence for designing, manufacturing and installing narrow-gauge railways and rolling stock. The company's plant at Koppel, Pa., has recently been enlarged. The American business offices are in the Machesney building, Pittsburgh, where the offices of the Arthur Koppel Co. have been located for some years.

A. J. Beckley, Garwood, N. J., is desirous of forming a partnership with some experienced man to establish a plant in the South or Southwest for the manufacture of road-making machinery. The firm should have a capital of from \$50,000 to \$100,000. Mr. Beckley, who has been in business for thirty years, starting in Chicago in 1879, has a large screening-machine manufacturing plant at Garwood, N. J., and desires to establish a business in the South in connection with it, as he has many enquiries coming from that section of the country. He will deal with nobody but an energetic business man of high financial integrity.

The Broderick & Bascom Rope Co., of St. Louis, has received a gold medal for its exhibit of wire rope at the Alaska-Yukon Exposition. The company received gold medals at the Louisiana Purchase Exposition of 1904 and the Lewis & Clark Exposition of 1905.

NEW BOOKS FOR THE TRADE.

In our last issue we called attention to several new books that were added to our list. We have again added to this list, and think it deserves special mention. Nothing is of more importance than this veritable encyclopedia of information which we are now able to supply. These books are by the most eminent authors, treating on all subjects that are essential to the architect, the contractor, the builder. The dealer also will be interested in them. Every branch and detail of the building trades is covered. Read over the list on page 74 and let us know your wants. Immediate delivery is assured. The prices are reasonable.

"Gas and Oil Engines" and "Gas Producers," a treatise on the modern development of fuel economy and power production, by Lionel S. Marks, S. B. M. M. E., assistant professor of mechanical engineering, Harvard University, and Samuel S. Wyer, M. E. Prof. Marks in his treatise on "Gas and Oil Engines" gives a full, clear and complete exposition of the "Internal Combustion Motor" and "Operation and Maintenance of the Gas Engine" and of the "Oil Engine." Each is a separate paper replete with information and of valuable suggestions. Mr. Wyer discusses "Gas Producers" most gracefully and learnedly, not using long and technical terms, but in such a manner that the most unsophisticated will readily comprehend. "Gaseous Fuels" are carefully explained, and the "Manufacture of Producer Gas" is treated in the same erudite manner.

Engineers, machinists, power plant owners, managers, etc.—in fact, all interested in efficient and economical power production—will find this book of practical value.

"Building Superintendence," by Edward Nichols, a working guide of modern American building practice and the systematic supervision of building operations. The principal topics treated are "Preliminary Requirements and Foundation Work," "Framing and Exterior Finish of Suburban Residences," "Interior Finish and Apartments," "Construction of City Buildings" and "Fireproof Building." Each of these headings is divided into many subdivisions. The work is comprehensive, and undoubtedly will be appreciated by the trade.

"Estimating," a complement of the preceding volume, being essentially a guide to systematic methods in taking off quantities and making up estimates of cost in building operations, with quotations of current prices for materials and labor. Dr. Nichols in this work gives invaluable information for the use of architects, contractors, builders, carpenters, plumbers, painters, cornice makers and all workers in the building trades. He tells just how to go about the task of making an estimate intelligently. Each detail is taken up separately, and yet it is so concisely and tersely expressed that the most inexperienced readily understands. Mr. Nichols is thoroughly conversant with all branches of his subjects.

"Heating and Ventilation," by Charles L. Hubbard, S. B. M. E. This is a manual of approved practice in the heating and ventilating of dwelling houses and other buildings, with complete practical instruction in the mechanical details, operation and care of modern heating and ventilating plants. Hot air, steam and hot water heating are each treated separately. The care and management of apparatus in all their details are fully explained. The many systems of ventilation are discussed thoroughly and lucidly, and the most modern and practical are exploited. The volume contains 180 illustrations, and

this prevents the possibility of any misunderstanding. Very seldom is so much information conveyed in a single volume.

"Refrigeration," a practical treatise on the scientific principles, mechanical operation and management of refrigerating plants based on the various modern systems of artificial cooling. By Charles Dickerman and Francis H. Boyer. This is a complete guide to the principles and mechanical details and practice of modern systems of artificial cooling, including the construction, equipment and operation of various types of refrigerating plants, such as ammonia compression and absorption brine, compressed air, carbonic anhydride gas, etc. Each point is clearly elucidated, even the novice being capable of thoroughly understanding every detail. The book is brim-full of useful information.

Ritschel's beautiful painting, "Dutch Fishing Boats," reproduced in chromo-lithography, with much of the color-effect of the original picture, forms the very attractive *piece de resistance* of the calendar sent out by the Ashland Fire Brick Co., of Ashland, Ky. Like everything done by this company the calendar, a veritable work of art, shows the result of great pains and close attention to detail in its production, and Sales Manager Savage may well be proud of it, even to the extent of reminding the recipients that, like the picture, "mid the hurry of prosperous 1910 Ashland brick will be made with exceeding care."

This is undoubtedly one of the most pretentious and artistic of the calendars of 1910, and will be sure to find a place, suitably framed, wherever real art is appreciated. Ritschel has won wide fame as a painter of fishing scenes in Holland, and "Dutch Fishing Boats" is one of his masterpieces.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion 25 cents a line
For two insertions 45 cents a line
For three insertions 60 cents a line

Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.
Remittances should accompany the order. No extra charges for copies of paper containing the advertisement.

EMPLOYEES WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

MARCH 1ST, 1910.

Wanted—Outside superintendent for lime kilns and quarry. Must have experience and be capable of handling 100 men. Give references and salary wanted.
Address "B," care Rock Products.

SUPERINTENDENT WANTED

for lime plant. Must be competent. References required.
Address EAGLE LIME PRODUCTS CO.,
Pereles Bldg., Milwaukee, Wis.

EXPERIENCED SALESMAN.

Wanted, two first-class, experienced, traveling Portland cement salesmen for territory west of the Mississippi river. No beginners or parties handling other lines need apply. Give references; also salary expected.
Address 727, care Rock Products.

EXPERIENCED MAN

Wanted in handling rotary kilns and gas producers. Permanent position for right party as foreman of plant. Reference required. Address
BOX 323, Danbury, Conn.

SUPERINTENDENT

wanted for lime burning or stone crushing plant. Am familiar with every detail of each.
Best of references.
BOX 743, Rock Products.

FIRST-CLASS MAN

Wanted to act as general foreman in quarry plant. Stripping is done with hydraulic plant and gravel is loaded from pit above the rock. Apply, stating wages expected and furnish references. Address
THE ATCHISON GRAVEL, SAND & ROCK CO.,
Atchison, Kan.

GOOD QUARRYMAN

Wanted for an open gypsum quarry in the West.
Address
BOX NO. 746, care Rock Products.

PRACTICAL QUARRY AND CRUSHER MAN

Must be good mechanic and have had experience in limestone quarry. Good references required.
Address NO. 747, care Rock Products.

EMPLOYMENT WANTED

SAND AND GRAVEL FOREMAN.

Position wanted by experienced sand and gravel washer; foreman. Address 730, care Rock Products.

ROTARY KILN (LIME) MAN

Wants position. Experienced. Hydrated limes, as engineer or superintendent. References.
Address NO. 749, care Rock Products.

POSITION AS SUPERINTENDENT

Wanted by middle aged married man with quarry, crusher, lime burning and business experience. Sober, industrious and reliable. References.
Address BOX 748, care Rock Products.

PRACTICAL MAN

Wants position. Capable of handling large modern lime plant, etc., in any capacity up to works manager. First class references.
Address M. E. WAGNER,
24 The Schmidt, Toledo, Ohio.

MECHANICAL ENGINEER

Wishes to change position; 33 years of age, 10 years' experience; 7 years in my present position; designing and reconstructing cement plants; superintended installation of all machinery and understand operation of plant; will consider proposition from engineering and construction company; references.
Address BOX NO. 751, care Rock Products.

EXPERIENCED MAN

Position wanted by a traveling cement salesman, of several years' experience. First class references.
Address NO. 736, care Rock Products.

TRAVELING SALESMAN.

Position wanted by traveling salesman with fifteen years' experience in New York and Eastern States in cement, plaster and building materials. References supplied. Address NO. 752, care Rock Products.

HOW ABOUT THESE?

Gates No. 6 Style "D" Crusher, rear drive. (2)
Gates No. 3 Style "D" Crusher, rear drive.
Mundy 7½"x10" with boiler and boom swinger.
Lidgerwood 7x10 D. C. D. with boiler.
American 6½"x10" D. C. D. with boiler (2).
Byers 6"x4" with boiler (both friction and links).
Smith No. 2½ Mixer, mounted, with engine and boiler.
Koehring No. 2 Mixer, mounted, with engine and boiler.
Smith No. 2 Mixer, mounted, with engine and boiler.
Knowles Pump, Duplex, 16"x10½"x12".
Laidlaw-Dunn-Gordon Duplex Compound, 14x20x10x18.
32-ton standard gauge 4-wheel Switcher and Tender.
Norwalk compound Compressor; 960' to 100 lbs.
We have Steam Shovels, Dinkies, Cars, Rock Drills, Road Rollers, Clams and Orange Peels, etc.
Send for our printed stock sheet and price list, just issued.

We buy good equipment; what have you?
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171 La Salle St., Chicago, Ill.

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TO BUILD MACHINERY.

Capital partner wanted to manufacture road makers' machinery for the South and Southwestern country in the locality of Birmingham, Ala. Address
A. J. BECKLY, Garwood, N. J.

BUSINESS OPPORTUNITIES.

Fifteen years' experience selling crushed stone and superintending and managing crushed stone plants, combined with constant study of the consumers' demands and how most economically to produce same, enables me to give expert advice on the important and vital questions, "What kind of machinery shall we buy and how shall we install it?" Parties erecting new or remodeling old plants can save time and money and turn out goods that will capture the trade by consulting
BOX NO. 750, care Rock Products.

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Eight feet of gypsum rock; analysis 94 to 96.7; one mile from four railroads. Call and see the cores.
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For sale, near Chicago—\$8,000 buys complete Gates crushing plant, No. 8 and No. 4 Style "D," two hoists, including buildings and bins. With this outfit are 32 end dump pit cars, 1 large pit pump, 2 portable boilers, superintendent's cottage, etc. Plant has been run about four years and is in first class condition. The best bargain in the country for the money.
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We make a specialty of Sand and Gravel Excavating Plants, both New and Second Hand, either with Drag-line bucket, Clamshell or Orange Peel. We furnish necessary equipment or will install complete—as desired. Confer with us.
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Nos. 3, 4 and 5 "Champron" and "Blake" Jaw Crushers. "Smith," "Ransome," "Municipal" and "McKelvey" Concrete Mixers.

Locomotive Boilers on skids and wheels.

Air Compressors, 6 to 24" cylinders, steam and belt driven.

1—10 ton "Industrial" locomotive crane.

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Boilers—Horizontal, Portable and Vertical, all sizes from 1 to 200 H. P.
Pumps, Heaters, Tanks, Sawmill and General Machinery.

Write for our prices on your requirements.
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1745 Powers St., Cincinnati, O.

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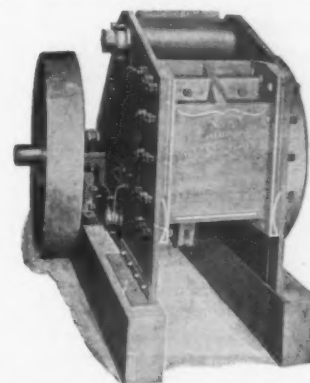
2—75 ft. x 6 ft. hardening cylinders.
1—4 mould Chisholm, Boyd & White brick press. Capacity, 20,000 per day of 10 hours.
1—4 mould Chisholm, Boyd & White combination brick and block press. Capacity, 20,000 per day of 10 hours.
1—Rotary brick press. Capacity, 10,000 per day of 10 hours.
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Also miscellaneous brick machinery. All new and in first class condition. Will sell cheap. Inspection invited.
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1 No. 7½ Gates Plant complete.
1 No. 7½ Austin Crusher only.
1 No. 6 Gates Crusher only.
1 No. 5 Austin Crusher only.
1 No. 5 Gates Crusher only.
2 No. 3 Gates Crushers.
1 No. 4 Gates Crusher.
1 17x24 Buchanan Jaw Crusher, made by Geo. V. Cresson & Co., Philadelphia.
We also have a lot of crushers of various makes at a great bargain.
All of the above crushers are absolutely first-class.
In addition, we have for sale:
2 75-Ton Steam Shovels, almost new, equipped with 3½ yd. dippers and built especially for loading stone.
MARSH COMPANY, 903 Old Colony Building, Chicago.

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Bargains.

If You
Want a
Position
or need a
Employee
an Ad
here will
Supply You.



No. 5 Champion Steel Rock Crusher, 11x26 in. Opening.

Speaking of ROCK CRUSHERS

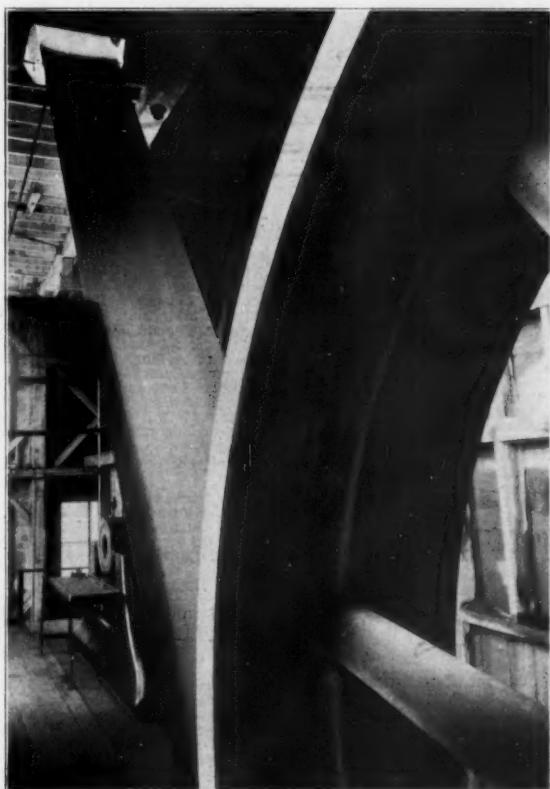
there are over 3,000 Champion Machines in use. Every machine is speaking for us by the good work it is doing.

Champion Crushers are made of steel. They work well and last well. We offer them as the best and most economical crushers made.

Five different sizes, from 75 to 300 tons daily capacity. Elevators, screens, conveyors, engines, boilers. Complete plants installed.

The Good Roads Machinery Co.
KENNETT SQUARE, PA.

A SAWYER MAIN DRIVE BELT



143 FEET—36 INCH—10 PLY.
Largest amount of stretch cut
out at any one time, 4½ inches.

This Belt was installed March 1st, 1906, replacing one four times its cost, which had proven unsatisfactory.

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The upper, or driving pulley is 54½" diam., 154 revs. per minute; the lower, or driven pulley, 190" diam., 44.17 rev. per minute. The belt has been in continuous use 144 hours per week since March 1st, 1906, and is transmitting a steady load of 350 horse power.

We have no better running belt in our mills.

NAME TO INTERESTED PARTIES ON REQUEST.

Estimates furnished—Address ENGINEERING DEPARTMENT

Sawyer Belting Company CLEVELAND
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THE HENRY MARTIN BRICK MACHINE MFG. CO.

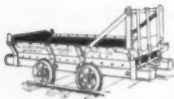
LANCASTER, PENNA.

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MACHINERY
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Continuous Service.

The above car carries 3½ tons of stone;
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Changes of Copy

Must be in this office by the Fifteenth of the month, if proofs are desired; if no proofs are required the desired changes can be made if copy is received by noon of the Nineteenth.

New Advertisements

To insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Nineteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

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355 Dearborn Street, Chicago, Ill.

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West Jersey Bag Co., The.

BAG PATCHER—CEMENT.

Little Co., C. H.

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Aising, J. R., Eng. Co.
Power & Mining Mch. Co.

BELTING.

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Gandy Belting Co.
Main Belting Co.
Sawyer Belting Co.

BRICK.

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Charles, J. M.

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Oklahoma & Texas Cement Brick Co.
Peerless Brick Machine Co.

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Fowler & Pay.

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Cummer, F. D., & Son Co.
Kent Mill Co.
Power & Mining Machy. Co.
Ruggles-Coles Eng. Co.

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Alma Portland Cement Co.
Alpha Portland Cement Co.
Atlas Portland Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
De Smet, Geo. W.
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Dixie Portland Cement Co.
Edison Portland Cement Co.
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United Kansas Portland Cement Co.
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Western Lime & Cement Co.
Wisconsin Lime & Cement Co.
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Schmatolla, Ernest.
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Clyde Iron Works.
Kritzer, The, Co.
National Mortar & Supply Co.

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Clyde Iron Works.
Kritzer Co., The.

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Fowler & Pay.
Hart & Page.
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Kelly Island Lime & Trans. Co.
Marblehead Lime Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
New Jersey Lime Co.
Pierce City Lime Co.
The Scioto Lime & Stone Co.
Western Lime & Cement Co.
Wisconsin Lime & Cement Co.
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Williams Pat. Crusher & Pulverizer Co.

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Raymond Bros. Co., The.
Sturtevant Mill Co.
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Williams Pat. Pulverizer Co.

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Monon Route.

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Aquabar Co., The.
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Red, Brown, Buff and Black



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The Strongest and
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in the Market.



Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

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Chattanooga, Tennessee

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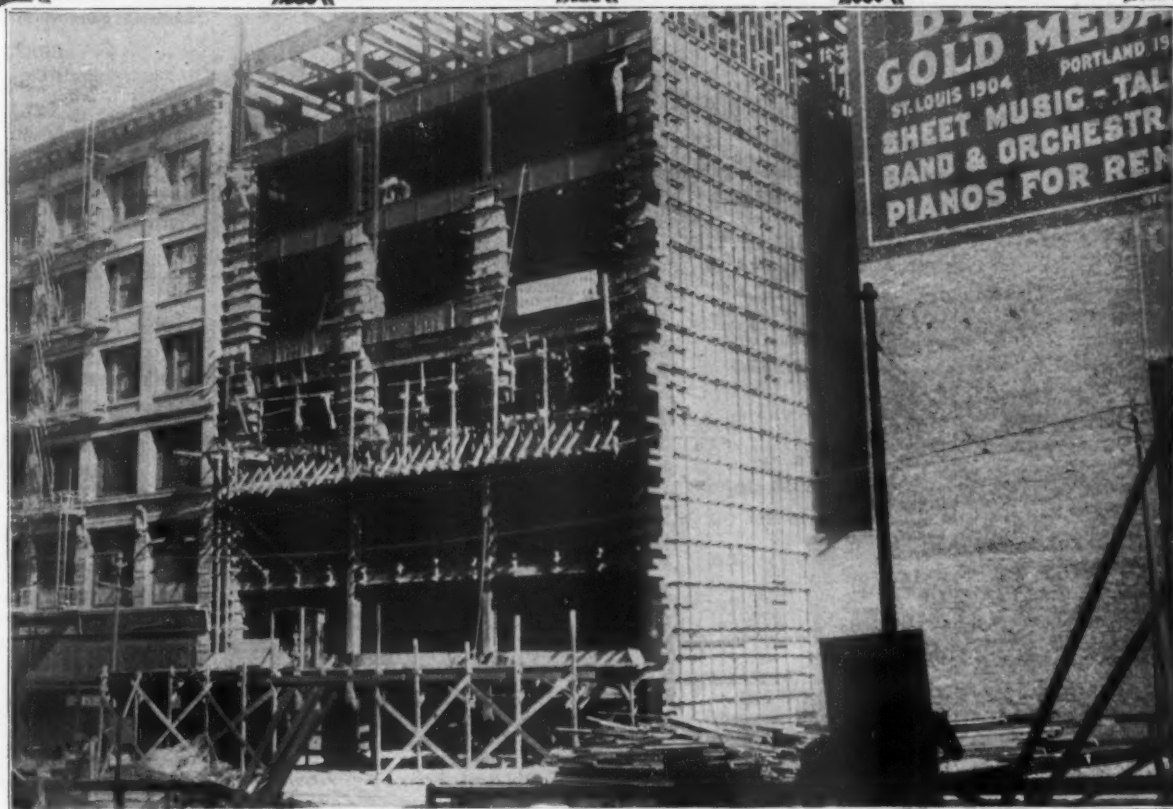
of time and weather tried out Ricketson famous "Red Brick" Brand.

COLOR

for Mortar, Brick, Cement, Stone, etc., and proved it to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson Mineral Paint Works
MILWAUKEE, WISCONSIN

Triangle Mesh Concrete Reinforcement



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TRIANGLE MESH fabric used on all floors and roof.

Meyers & Ward, Architects

Rickon-Ehrhart Engineering & Const. Co., Builders

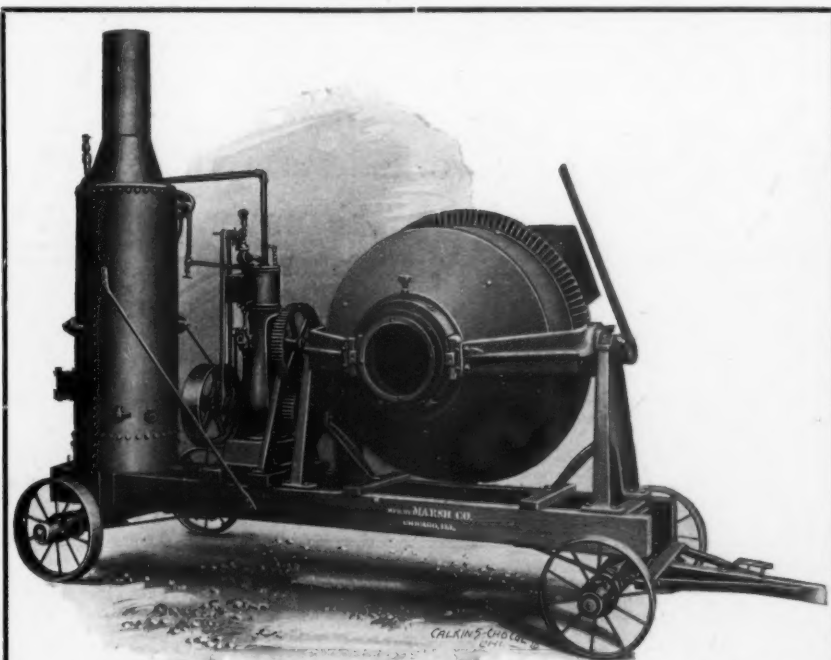
Made by
American Steel & Wire Co.

CHICAGO, NEW YORK, DENVER, SAN FRANCISCO.

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United States Steel Products Export Co., New York, N. Y., Export Representatives.

MARSH^{UP-TO-DATE} LINE OF MIXERS

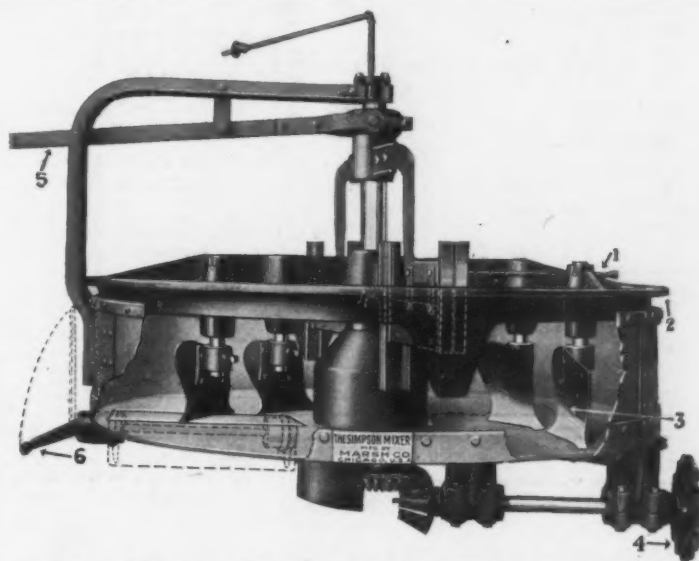


MARSH-DEXTER—Best and Simplest Tilting Mixer. Note absence of complicated gearing which add to weight but not to strength.

The result of 7 years' experience selling mixers, meeting 10,000 to 15,000 practical Buyers, Contractors, Engineers, Architects, their advice and experience, **your** experience, our experience, the combined experience which has enabled us to produce a line of

MIXERS

which comes nearest of meeting **all** the requirements of **all** conditions met in actual use. Not just one type of machine which must be made to do for all kinds of work, whether adapted to it or not, but **different** types to fit varying conditions.



Best for Special Classes of Mixing, such as Fertilizers—Mortar, Wet or Dry, or Semi-dry Concrete, Glass Batch, anything you want Mixed. Mixing Always in Plain Sight.

MARSH CO. 990 Old Colony Bldg.,
CHICAGO, ILL.
GENERAL AGENTS.

Tell 'em you saw it in ROCK PRODUCTS

Milwaukee Mixer



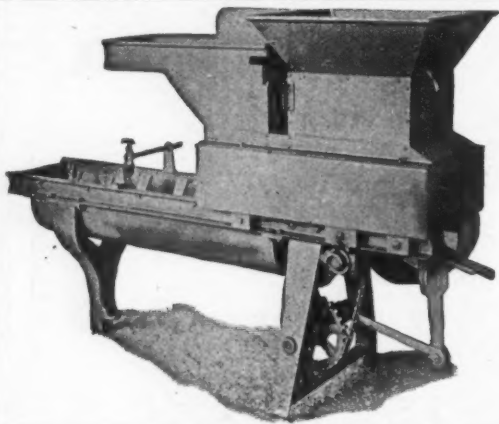
RIGHT THIS WAY, PLEASE!

¶ The newest and best Concrete Mixer ever made, because it is the embodiment of all the experience that other mixers have worked out.

¶ W. J. Roseberry, the mixer expert, introduces this Mixer at the Chicago Cement Show as the perfection of mixer mechanism to date.

¶ Be sure to inspect the advantages contained in the Milwaukee Mixer—a truly perfect machine.

Milwaukee Concrete Mixer & Machinery Co.
Clinton St., Milwaukee, Wis.



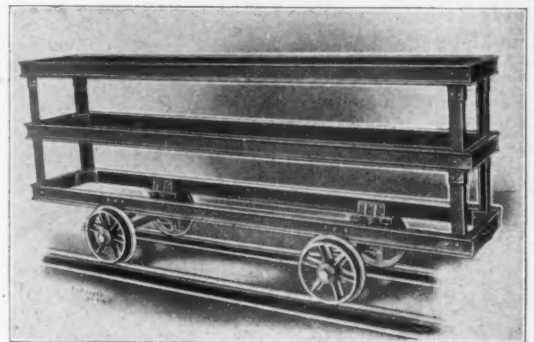
"KENT" CONTINUOUS MIXER

"The Mixer that measures and Mixes"

"You fill the Hopper, the Mixer does the rest"

Simple, reliable, economical, durable and moderate in price

Write for Catalogue and Prices to
The Kent Machine Co.
306 N. Water St., Kent, O.



The "KENT" Block Cars, Transfer Cars, etc.



Deep Blast Hole Drilling

Is accomplished more economically than by any other method with the

"American" Drilling Machines

There is 40 years' experience behind these drills—they are standard.

Where electric power is available, equipped with motor they form the most portable and economical drill for quarry use.

Equipped with any power they are backed by the experience and reputation of the world's oldest and largest builders of this kind of drilling machinery.

Tell us your blast hole requirements. We have 59 regular styles and sizes of machines for your selection, made in types to meet every possible condition of work.

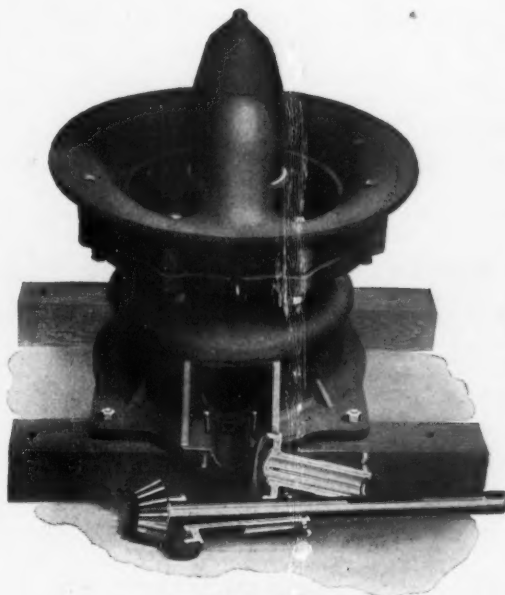
Write for our new catalog No. 105, the most complete "Drill-Hole" catalog ever issued.

THE AMERICAN WELL WORKS

General Office and Works: AURORA, ILL., U. S. A. Chicago Office: First National Bank Building

Tell 'em you saw it in ROCK PRODUCTS

NOTE the simple method of rebabbitting the eccentric, and the ease with which the countershaft and pinion can be removed, in the



SYMONS CRUSHER
showing countershaft bearing, with pinion
and shaft removed.

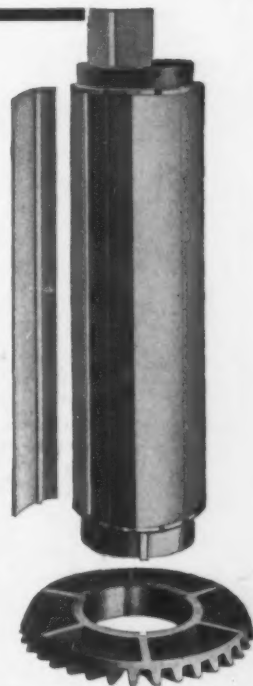
SYMONS CRUSHER

The babbit is cast in sections, which fit into vertical slots, machined into the eccentric. No babbiting mandrel is needed. No melting or pouring of babbit is required—just knock out the old sections and slip in the new ones.

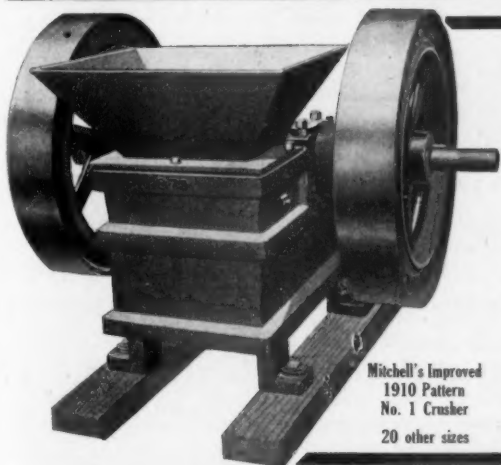
WRITE FOR CATALOG No. 166

THE T. L. SMITH CO.

301 Old Colony Bldg. CHICAGO, ILL.



Symons
Eccentric,
Detachable
Gear
and
Sectional
Babbit



Mitchell's Improved
1910 Pattern
No. 1 Crusher
20 other sizes

THE ONLY CRUSHER

that can be instantly adjusted to crush rock to any desired size. We make broader claims for our machines than this—they will crush rock from 3 inch to 4 inch down to sand and pea size in one operation.

The capacity depends upon the size of
the machine—we make 20 different ones

All wearing parts are of Manganese steel, specially designed to stand the "hard knocks." We can tell you more about them in our new No. 5R Catalogue—write for it.

Eureka Stone & Ore Crusher Co.
CEDAR RAPIDS, IOWA



AUSTIN GYRATORY CRUSHER

The World's leading rock
and ore breaker.

The only self lubricating
Crusher.

The only Crusher having
double countershaft bearing.

Simple construction, cor-
rect design.

Thousands in use.

Plans and specifications

furnished for any sized plant.

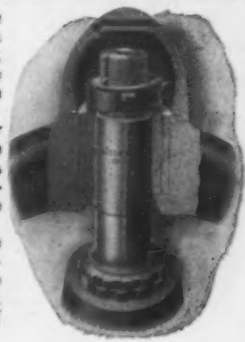
Send for Catalogue No. 17.

All experienced users recognize that the efficiency and durability of the suspension bearing as applied to Gyratory Crushers, depends upon locating the bearing at the point of least gyration or movement of the main shaft.

A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration of the shaft.

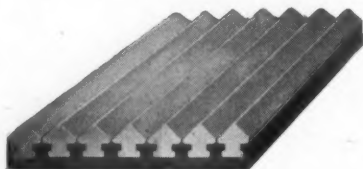
As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.

Austin Manufacturing Co., Chicago,



New York City Office
1682 FULTON BUILDING
Hudson Terminal

A Tempered Steel Jaw Plate for Blake Type Crushers



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

CHROME STEEL WORKS

CHROME, N.J., U.S.A.
(FORMERLY OF BROOKLYN, N.Y.)

☞ The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

☞ The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

☞ Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

— Send for Descriptive Pamphlet —

Represented by

J. F. Spellman, 202 Century Building, Denver, Colo.

George T. Bond, Easton, Pa.

George W. Myers, San Francisco, Cal.



HOWELL'S Celebrated Ball Bearing Heavy Geared Post Drills

For boring anything that
an Auger will penetrate.

Awarded Gold Medal, St. Louis.

We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send to day for our handsomely Illustrated Catalogue.

HOWELL MINING DRILL CO., PLYMOUTH, PA., U. S. A.
(ESTABLISHED 1878.)



Send for Catalog 25

**COMMON SENSE
CONVEYOR ELEVATOR**



**THE GENERAL CRUSHED
STONE CO.,**
So. Bethlehem, Pennsylvania,

have been using one of our Common Sense Elevators for six years—
capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND, OHIO.

FARREL ORE AND ROCK CRUSHER

USED IN ALL PARTS OF THE WORLD—LARGE
RECEIVING CAPACITY—SPECIALLY DESIGNED
AND CONSTRUCTED FOR HARDEST KIND OF WORK

COMPLETE CRUSHING PLANTS OUR SPECIALTY

• SEND FOR CATALOGUE •

EARLE C. BACON, ENGINEER.

FARREL FOUNDRY & MACHINE CO. HAVEMEYER BUILDING, NEW YORK

American Ring-Hammer Pulverizer

December 22d issue of Rock Products exhibited outward designs of our

ROCK and SHALE PULVERIZERS

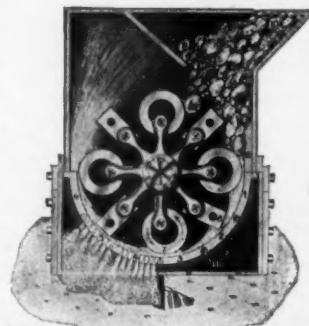
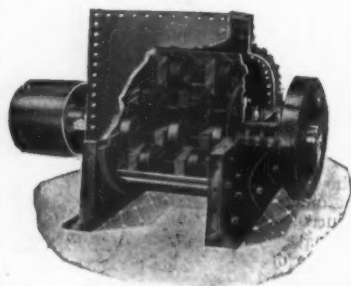
and told you of the slow speed, manganese steel grinding parts, ability to produce quantity and quality, and this issue tells you why, by exhibiting the Rings and Hammers, their spiral arrangement, flexible adjustment of each Ring, same controlled by centrifugal force.

THE ONLY PULVERIZER

utilizing centrifugal force at right angles to a horizontal shaft. Secure our circular. It tells the extent of this force, of tonnage, fine grind, etc.

American Pulverizer Company

410 Jaccard Bldg., St. Louis, Mo.



Tell 'em you saw it in ROCK PRODUCTS

The Only Gyratory Crusher

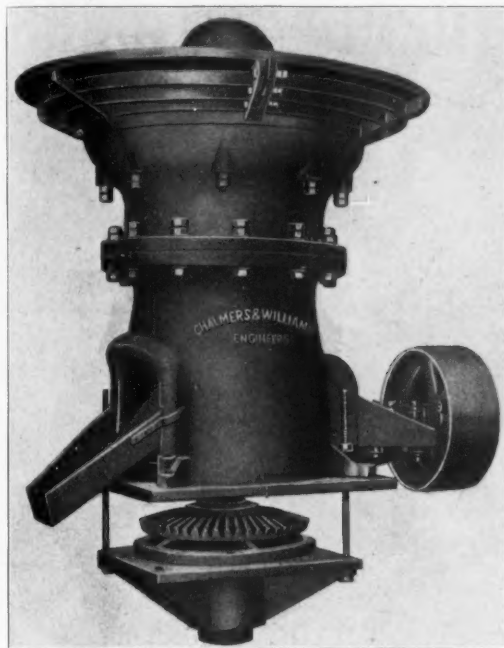
with the following

SPECIAL FEATURES:

Ten percent larger feeding openings, size for size, than any other. (This means reduced cost of sledging in quarry—saves money.) More room under spider arms. (This means less bridging when stone is dumped in hopper.) More room under head. (Prevents clogging in wet stone.) Better dust protection to all wearing parts. (This means long life, less repairs.)

Ball and Socket Eccentric

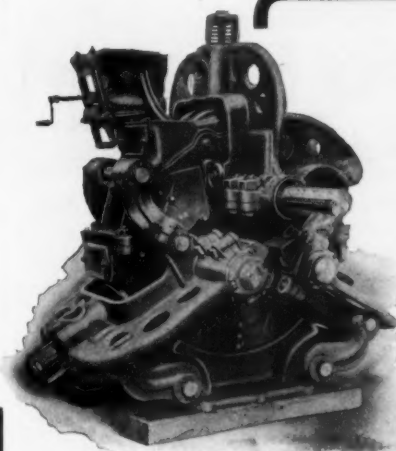
Absolutely unique feature, insuring perfect bearings where others must use loose fit with lost motion. This increases capacity of our crusher at least 10%. Other details of improvements too numerous to mention in this space—Catalog will tell you all. If what we claim is true, you want to know it. Write us and we will tell you how to find out.



Kennedy Gyratory Crusher
Made in all sizes. Write for Catalog

Marsh Co., GENERAL AGENTS

990 Old Colony Building, Chicago



MAXECON

MEANS

MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

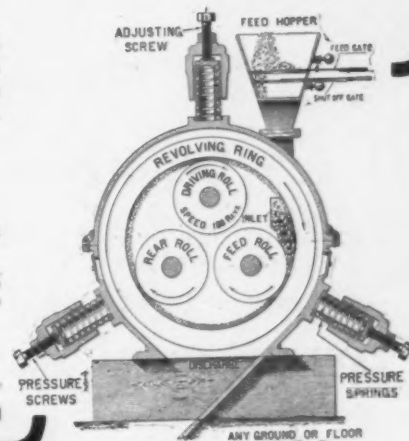
We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., W. H. Harding, Prest., Copley P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work. Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

KENT MILL CO.

170 BROADWAY, NEW YORK CITY
LONDON, W. C., 31 HIGH HOLBORN
CHARLOTTENBURG 5, WINDSCHEID STRASSE 40, BERLIN



Tell 'em you saw it in ROCK PRODUCTS

RAW MATERIAL GRINDERS

New Williams Universal



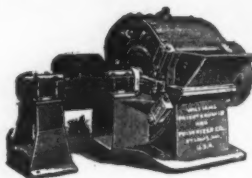
FOR TUBE MILL FEED
800 BARRELS 22 HOURS
95 PER CENT THROUGH 20 MESH
HORSE POWER 40 TO 50

WE ALSO GRIND
GYPSUM, LIME, COAL AND SHALE

Vulcanite Grinder

FOR ROLLER MILL FEED
TAKES MATERIAL FROM
GYRATORY, DIRECT

CAPACITY 20 TONS HOUR
FINENESS $\frac{1}{2}$ IN., $\frac{1}{4}$ IN. AND $\frac{1}{8}$ IN.
HORSE POWER 40 TO 45
1,300 MILLS NOW IN USE



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WORKS:
ST. LOUIS, MO.

The

SALES OFFICE:
OLD COLONY BLDG.
CHICAGO

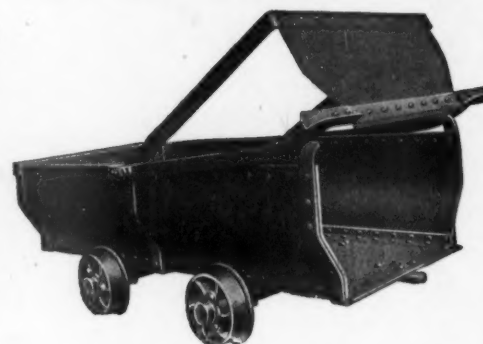
Williams Pat. Crusher & Pulverizer Co.

San Francisco Offices: 428 Monadnock Building

→ IN STOCK!! ← 5-1 $\frac{1}{2}$ YD. QUARRY CARS

For immediate shipment similar to cut below

36"
GAUGE



14"
WHEELS

These Cars are new all steel, equipped with self-oiling wheels and wood sub sill bumpers. Height 34" top of rail to top of car.

See catalogue No. 31-R for other types.

H. B. Sackett Screen & Chute Co.

4212 State St., Chicago, Ill.

CONTINUOUS OPERATION

of your equipment is essential to your success.

Success dictates that good judgment be used in the selection of the wearing parts of your crushers.

Good judgment calls for

JAWS—

CHEEK PLATES

HEADS

CONCAVES

GEARS of

Tisco Manganese Steel

And the resultant assurance of longest wear and greatest service.

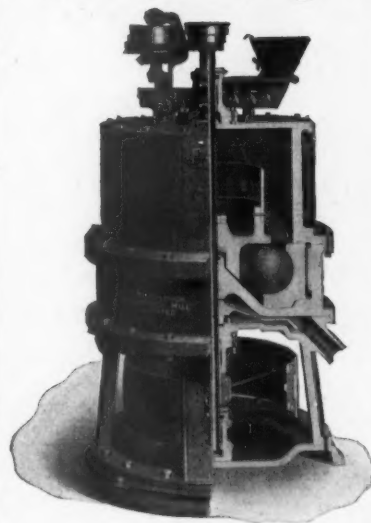
Is your judgment good?

TAYLOR IRON & STEEL CO.

HIGH BRIDGE

NEW JERSEY

The Fuller-Lehigh Pulverizer Mill



Cement Companies equipped with Fuller Mills advertise the fact that the consumer gets 38 pounds more of the IMPALPABLE POWDER or REAL CEMENT in every barrel of cement produced by The Fuller Mill than by any other

Produces Commercially

Cement having a higher percentage of Impalpable Powder than can be obtained by any other mill. Tests show that the tensile strength of a 1-5 mortar made with cement pulverized by the Fuller Mill is higher than the tensile strength of a 1-3 mortar made with cement pulverized to the fineness required by the Standard Specifications.

Lehigh Car, Wheel & Axle Works

Main Office: CATASAUQUA, PA.

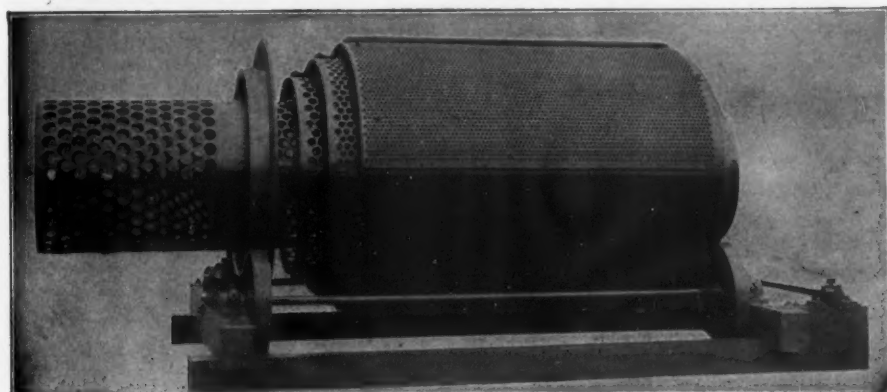
New York, N. Y.

Kansas City, Mo.

Hamburg, Germany, Alsterdamm 7.

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JOHN O'LAUGHLIN'S SCREEN



made solely by Johnston & Chapman, is the

ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the O'Laughlin installed

NOW

will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars, address:

JOHNSTON & CHAPMAN CO.

Corner Francisco and Carroll Ave., Chicago, Ill.

Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.

NEWAYGO SCREEN

SCREENS

From One-Quarter inch to 200 Mesh

PRICE \$285.00

Sold on Trial

If not perfectly satisfactory
in every way, it can be

Returned

Hundreds in operation—A few users and
number of Newaygo Screens bought:



Universal Portland Cement Co. 49	L. C. Ehle Oil Mills. 15	Mountain Copper Co. 4	A. J. Sackett. 2	Monarch Mining Co. 4
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STURTEVANT MILL CO., 110 Clayton St., Boston, Mass.

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Little Giant Electric Shovel Loading Blasted Rock. Kokomo Stone Co., Kokomo, Ind.

VULCAN

Steam AND Electric Shovels

Fill all the requirements of heavy quarry work because they are CORRECTLY DESIGNED and SUBSTANTIALLY BUILT

Every part is made of material which we know from our thirty years experience in high class steam shovel building to be the best for the purpose. Before shipment, each shovel is set up complete in our yards, thoroughly tested under full steam and all parts carefully inspected and adjusted. The purchaser is invited to witness this test, and the shovel isn't shipped until both of us are satisfied that it is right in every respect. In addition to this, we give him the benefit of a 10-day trial test in his own quarry and he doesn't have to accept the shovel until we have demonstrated on his own work that it is just as represented. We have so much confidence in the ability of our shovels to "make good" that we cover every one with an ironclad guarantee to give complete satisfaction. Do you want to try one on these terms? It's up to you.

Giant Boom Shovels

Six sizes, $1\frac{1}{2}$ to 5 cubic yard dippers
Steam or Electric Power

Little Giant Shovels

Two sizes, $1\frac{1}{2}$ cubic yard dippers
Traction Wheels or Railroad Trucks

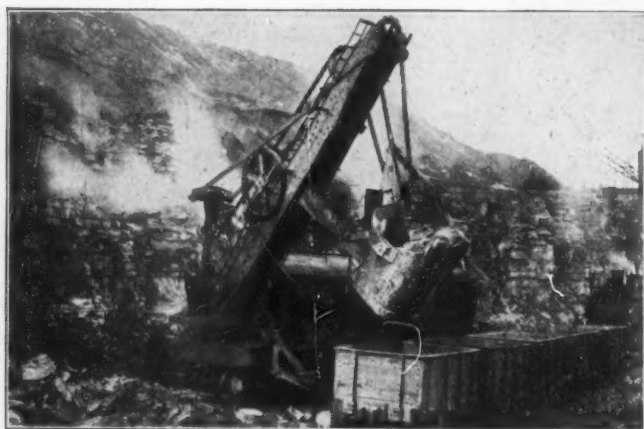
Revolving Shovels

Three sizes, $\frac{1}{2}$ to $1\frac{1}{2}$ cubic yard dippers
Send today for full information

The Vulcan Steam Shovel Co., Toledo, O.

NEW YORK OFFICE, 45 BROADWAY
Telephone 4039 Rector

CHICAGO OFFICE, 1303 GREAT NORTHERN BUILDING
Telephone 2838



95-C IN SANDUSKY PORTLAND CEMENT COMPANY'S QUARRY.

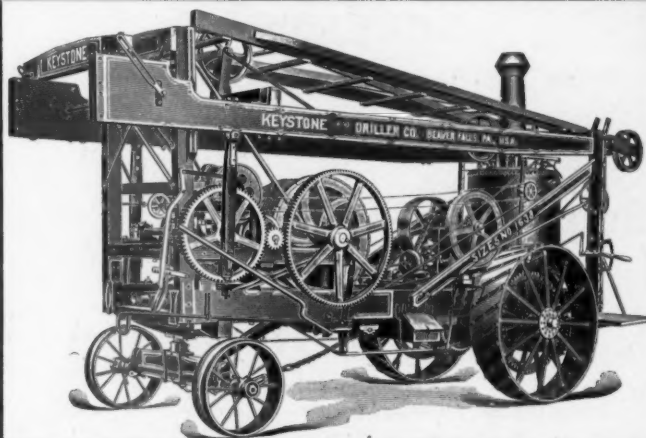
Bucyrus Shovels Are Loading Crushed Stone and Digging Blasted or Unblasted Cement Rock in the Leading Quarries in the United States.

THE BUCYRUS CO.

Branch Offices
NEW YORK
SAN FRANCISCO

Main Office & Works:
South Milwaukee, Wis.

KEYSTONE CHURN DRILLS FOR HEAVY BLAST HOLES



IN CEMENT and STONE QUARRIES, where large and deep blast holes can be used to advantage, these machines form the cheapest and quickest means of sinking 6 inch holes.

Penetrate any formations, any depth, 30 or 300 feet. Self-moving or portable, if desired.

Ask for Catalog No. 4.

KEYSTONE TRACTION DRILL CO.

Monadnock Bldg., CHICAGO. BEAVER FALLS, PA., 170 Broadway, NEW YORK. CARTHAGE, MISSOURI.

Tell 'em you saw it in ROCK PRODUCTS

You will get it eventually,
why not now?

Start the New Year Right
by using



GREASE

This is a perfect lubricant, is fireproof and WILL NOT HARDEN IN COLD WEATHER. Will keep bearings cool under the most extreme conditions. It is no experiment; our claims have been proven with hundreds of satisfied customers. Costs no more than ordinary grease.

CRUSHER COMPOUND

This is for crushers and machinery using pump system of lubrication. This compound is a heavy oil and has the same properties as the grease. It is fireproof and will absolutely keep the bearings cool. Will outlast any other lubricant on the market. It has a cold test of 14° below zero for winter work. Costs no more than other crusher oils.

For Stone and Rock Crushers—Cement Machinery

155-161 North Ada St., Chicago, Ill.

New York Office, 25 Broad St., New York City

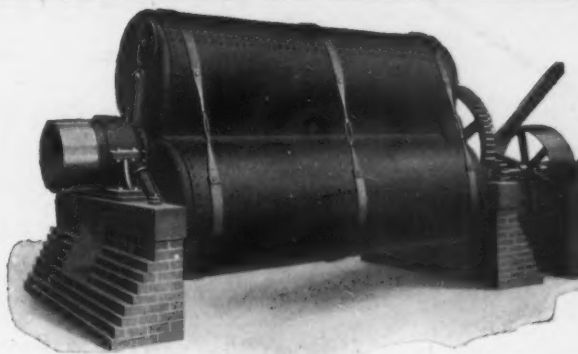
Do You Have Cars to Haul?
The Davenport Locomotive
Will Save Money



Special Designs for Special Purposes
Any Size, Any Gauge, Any Weight
Write for Prices and Particulars

DAVENPORT LOCOMOTIVE WORKS
DAVENPORT, IOWA

Sent on Approval



U. S. Patent Aug. 13, 1907

WE will install our Multiple Tube Mill for any reliable concern on approval.

We are willing to do this to prove that our mill is the most economical pulverizing device in existence. We claim superiority over the ordinary tub mill in that the construction is different and an enormous amount of power is saved. The load is distributed equally around the center, about which it revolves while in operation.

Write for Bulletin

J. R. Alsing Engineering Co.

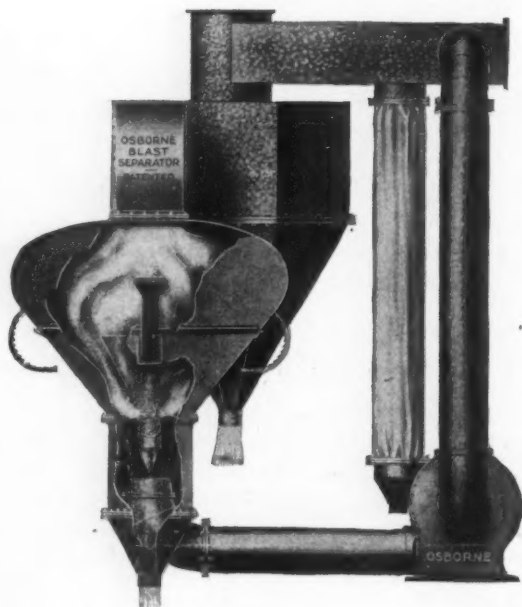
134 Liberty St.

New York, U. S. A.

Tell 'em you saw it in ROCK PRODUCTS

STOP LOSING MONEY

In Your Grinding Room



You know it costs money to separate your material after it is ground, so why not use the best means of separation?

We can prove that the

Osborne Pneumatic Blast Separator

IS THE BEST AND CHEAPEST MACHINE FOR YOU TO USE.

It will give you larger capacities for less horse power than any other machine on the market. Will separate your material to 200 mesh fine.

Capacities, from 3½ to 10 tons per hour of finished product 95% 100 mesh fine.

STOPS ALL FLOATING DUST IN YOUR GRINDING ROOM.

Circular "A" Tells You More About It.

Manufactured by

THE GRISCOM-SPENCER CO. 90 West Street, New York City

OVER TWENTY-ONE CENTS A TON SAVING IN GRINDING COAL

By Using

THE RAYMOND ROLLER MILL

The following figures are not theoretical but were given us direct from the cost records of one of our customers who makes cement.

During and previous to 1906 they used Hammer and Tube Mills for grinding their coal. Beginning with 1907 they used Raymond Roller Mills. Here are their figures:

	1907	1906
	Raymond Mill	Hammer and Tube Mill
Operation, cost per barrel	\$.008	\$.015
Repairs, cost per barrel	.004	.0175
Total	\$.012	\$.0325

Saving per barrel \$.0205

For more than 200 customers, in different lines, grinding all kinds of material, we have given similar results. Can you afford to ignore that record? It will cost you nothing to talk to us. Ask us for further information.

Raymond Brothers Impact Pulverizer Company

517 Laflin Street, CHICAGO

Tell 'em you saw it in ROCK PRODUCTS

Hydrated Lime

Bulletin 31

The opportunity for the betterment of concrete construction is so evident that every person interested in the subject whether architect, engineer, contractor or layman cannot afford to miss being posted on the advantages of hydrated lime as a means of improving all kinds of cement mixtures. It is not expensive, and by its simple application, the difficulties that have so long beset cement work may be effectually mastered.

If you are an ARCHITECT, you strive to overcome the dull gray color of concrete, and to make it pleasing to the eye. Hydrated lime will do this for you, and it won't cost you any more either. A small proportion in the aggregate noticeably whitens the color of construction and besides imparts to it a toughness that eliminates the brittle texture developed by cement alone.

If you are the ENGINEER, planning a concrete bridge or a retaining wall, you wish it to be strong and permanent as well. To be permanent, it must be waterproof. Hydrated lime will accomplish this for you. Instead of depending upon foreign substances to accomplish this purpose, isn't it reasonable to argue that the practical way is to make the concrete itself so dense that water cannot penetrate it? This is just what hydrated lime does. It fills the voids and small air holes left by the evaporation of the water in the aggregates and completely seals the concrete against the entrance of all outside moisture. It actually increases the strength of all cement mixtures, which harden in air, by preventing them from drying out too rapidly and restores the cement to its normal hydraulic state with maximum of strength augmented.

If you are the CONTRACTOR, it costs you valuable time and money to do the very thing that hydrated lime will do for you by itself. You can use hydrated lime in cement mortars. It is as easy to use as the cement itself and costs you nothing extra to incorporate it in your mortar. For the fact of the matter is, hydrated lime is cheaper than cement. You can actually substitute nearly half of the cement with hydrated lime and still get a mortar that is twice as strong and infinitely easier to mix and trowel. Three times as many brick can be laid in the same time with a cement lime mortar made out of hydrated lime. In heavy concrete construction, the aggregates are more easily made and placed in the forms when hydrated lime is employed. The Hydrate overcomes the frictional tendency on the part of the cement, thus allowing the fresh concrete to be more densely pressed together, with a great deal less effort. Then you get the result you are after too. That is a water proof job.

If you are a CEMENT BLOCK MANUFACTURER and are trying to reduce the cost and improve the quality of your artificial stone, you will find that hydrated lime will solve the problem for you. It makes cement blocks whiter, harder, tougher, cheaper and waterproof. All this is what you have been racking your brains to find the way to do. Now that we have told you the secret, it is up to you to get busy. Do some experimenting. The man who reads this can make up his mind that it is based on established facts. For prominent engineers and chemists have already demonstrated what a valuable addition hydrated lime is to cement construction. The ideal condition is reached when hydrated lime is used, because it waterproofs and increases the strength, improves the appearance and facilitates the working of cement concrete, and the best part of it is that not a cent of additional expense is incurred, while in many cases the cost is actually reduced. We suggest that you store this information away and act on it the first chance that presents itself. If you do, insist upon getting a superior grade of material from a manufacturer with improved machinery and modern methods, as not every hydrated lime is adapted to this purpose or capable of producing satisfactory results.

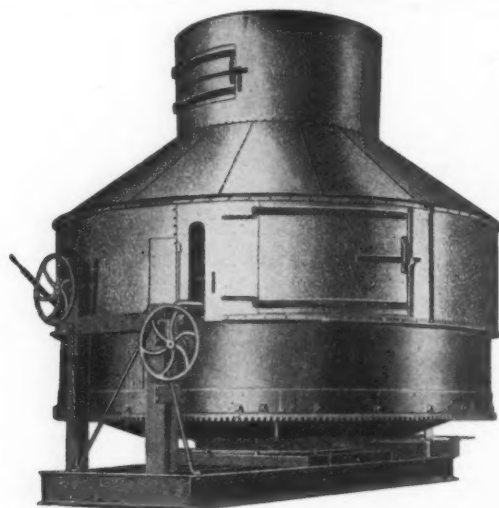
OUR BUSINESS is the designing and constructing of hydrating plants to make this up-to-date product. We have the only process that has proved successful in hydrating High Calcium and Dolomite Limes. We have been connected with the construction of over 40 plants, no two of them alike; every one built to meet local conditions. While our prices may seem high as compared with others, we only, with our experience, are in a position to contract and install a plant for you GUARANTEEING Definite Results. We GUARANTEE where others Promise.

It requires about 4 months to build a plant. Why not take this matter up now and get ready for next season's business?

The Kritzer Company

115 Adams Street - CHICAGO, ILLINOIS

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The Clyde Hydrator

is the accepted standard of highest efficiency, economical operation, positive results and general all around serviceability in hydrating machinery.

There are more of them in use than all others put together.

They have proven their merit under all conditions.

We will furnish full information, booklets and interesting data on your request.

"We like to answer questions"

CLYDE IRON WORKS

Manufacturers.

DULUTH, MINN.

Tell 'em you saw it in ROCK PRODUCTS

Make Money

by adopting Nuttall cut or planed gears as your standard. You will be suprised at the reduction in your repair bills.



Nuttall—Pittsburg

When in a hurry, wire us.

THE FULLER ENGINEERING CO.

DESIGNING, CONSTRUCTING AND OPERATING
ENGINEERS ANALYTICAL CHEMISTS

CEMENT MILLS A SPECIALTY

OFFICES: ALLENTOWN NAT. BANK BLDG. ALLENTOWN, PA.

MACHINERY

—FOR—

Industrial Plants



We manufacture machinery for transmitting power, and for elevating and conveying materials in and about cement plants, rock crushing plants, lime plants, mortar works, plaster works, and other industries.

We manufacture screw conveyors, belt conveyors, and all sorts of chain and cable conveyors, for handling rock, lime, sand, etc.

We manufacture elevators, also, for handling the same kinds of material. Our lines include shafting, couplings, bearings, collars, pulleys, gears, rope sheaves, sprocket wheels, elevator buckets and bolts, steel elevator casings, etc.

We have our own foundry, sheet metal department and machine shop. We employ first-class help in all departments and use high-grade materials.

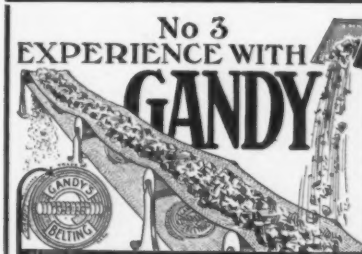
When you are in need of anything in our line, try us.

Catalog No. 34

H. W. Caldwell & Son Co.

17th St. and Western Ave., Chicago

Fulton Bldg., Hudson Terminal, No. 50 Church St.
NEW YORK CITY



No 3
EXPERIENCE WITH
GANDY

CONVEYORS AND GANDY

James R. Penberthy THE GERMAN ROCK ASPHALT & CEMENT CO.
The Gandy Belt is equally successful for all conveying as well as driving and elevating purposes.
There is but one Gandy Belt and that is made by the Gandy Belting Co., of Baltimore, Md. We also make the Gandy Belt Dressing; for all kinds of belts.
Write today for booklet "Experiences With The Gandy Belt."

THREE YEARS ON HOT SAND
THE GERMAN ROCK
ASPHALT & CEMENT CO.
BUFFALO, N. Y.

The Gandy Belting Co.
Baltimore, Md.

Gentlemen:—You ask us to give you a testimonial on your "Gandy Belt" for conveying hot sand. We will say, we have used one of your belts for three years on hot sand ranging from 250 degrees to 325 degrees Fahr., and can cheerfully recommend same to anyone who wishes to use a belt of your kind for this particular work. Trusting this will be satisfactory, we remain,

Yours truly,

THE GANDY BELTING CO. Baltimore, Md., New York Office: 88-90 Rensselaer St.



Wade Iron Sanitary Mfg. Co.

MANUFACTURER OF

Wade Back Water Gate Valves, Clean-Out House
Drainage Fittings, Iron Catch Basins and Cast
Iron Covers, Etc.

Send for Catalogue.

Long Distance Phone, Harrison 6713.

43 E. Harrison Street, CHICAGO, ILLS.

CLINTON METALLIC PAINT CO.

CLINTON, N. Y.

LARGEST AND OLDEST MANUFACTURERS OF

BRICK AND
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COLORING

Be sure you get the genuine with the "Little Yellow Side-Label" on each package.

Let us tell you about Side-Walk Black.



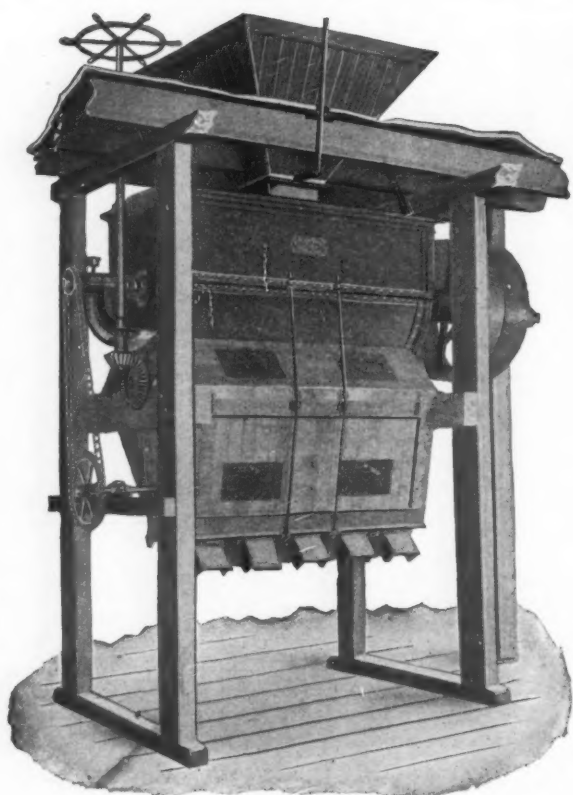
Osborne Crushing Plant of the Springfield Coal & Ice Co.

We are prepared to ship crushed limestone from
 $\frac{7}{8}$ to $3\frac{1}{2}$ inches on short notice.

On account of the high percentage (96 to 98%) carbonate of calcium, this material is especially suited for fluxing.

Excellent Shipping Facilities and Prompt Service.

The Springfield Coal & Ice Co.
SPRINGFIELD, O.



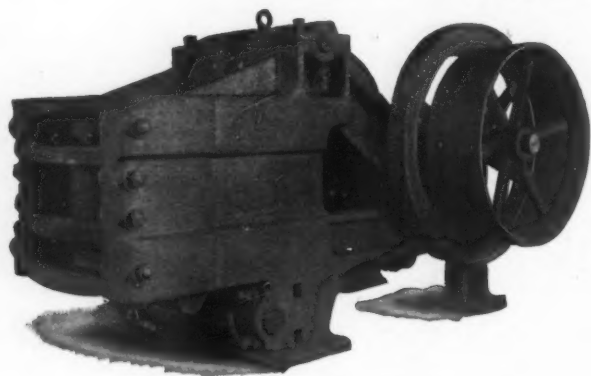
ENTERPRISE PLASTER MIXER

NOISELESS,
DURABLE and EFFICIENT.

For Mixing Hair Fibre, Wood Fibre and
Retarder with Dry Plastering
Materials.

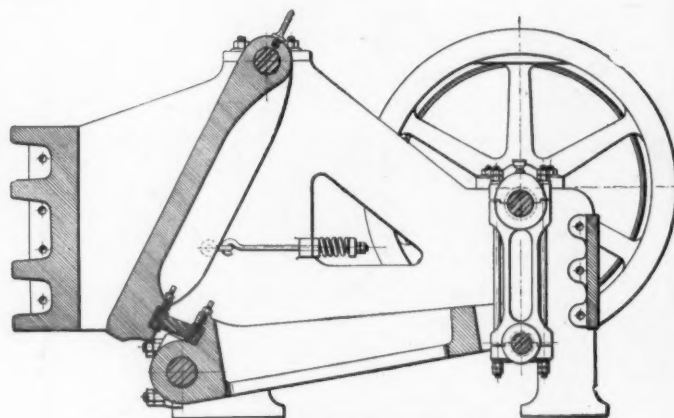
Calcining Kettles

Jaw and Rotary Crushers for Gypsum, Reels,
Vibratory Screens, Hair Pickers and Trans-
mission for applying power.



EHRAM NO. 4 JAW CRUSHER.

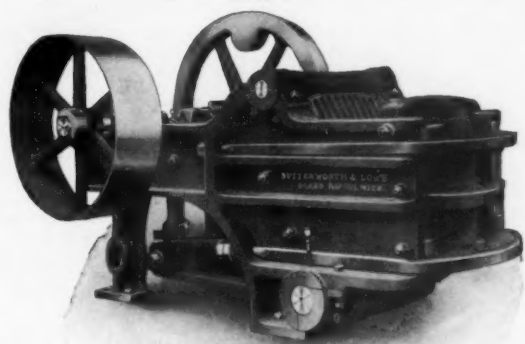
This machine will handle large chunks and reduce from 30 to 40 tons
of Gypsum per hour to 2½-inch maximum or smaller if wanted.



NO. 4 JAW CRUSHER, SHOWING SECTIONAL VIEW OF NIPPER
The jaw opening at inlet is 18x28 inches.

The J. B. Ehram & Sons Mfg. Co.,
BUILDERS OF
COMPLETE EQUIPMENTS FOR PLASTER MILLS
Enterprise, Kansas

Tell 'em you saw it in ROCK PRODUCTS



CRUSHERS

for soft rocks, burnt lime, etc.

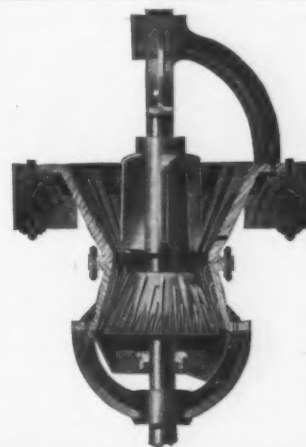
GYPSUM MACHINERY

We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

SPECIAL CRUSHER-GRINDERS FOR LIME
HYDRATORS

BUTTERWORTH & LOWE

17 Huron Street, GRAND RAPIDS, MICH.



Finest Line of Gypsum Machinery

MADE

KETTLE CRUSHER NIPPERS

ASK FOR CATALOG OF

MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

MCDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.

"Formerly Des Moines Mfg. & Supply Co."

SPECIAL MACHINERY AND FORMULAS

FOR THE MANUFACTURE OF

WOOD FIBRE PLASTER, FIRE PROOFING
AND KINDRED PRODUCTS

We furnish the latest improved FIBRE MACHINE, (fully patented) also FORMULAS, on a reasonable proposition. The strongest companies and oldest manufacturers are operating under my contracts.

WRITE FOR TERRITORY

The Ohio Fibre Machinery Co.

J. W. VOGLESONG,
GENERAL MANAGER

Elyria, Ohio

KING'S WINDSOR CEMENT FOR PLASTERING WALLS AND CEILINGS

Elastic in its nature, can be applied with 25 per cent less labor and has 12½ per cent more covering capacity than any other similar material

Buffalo Branch, CHAS. C. CALKINS, Manager
322 W. Genessee Street

J. B. KING & CO., No. 1 Broadway, New York

Do You Know?

SEE IT
AT CEMENT
SHOW
BOOTH No. 12

Beaver Board

**Makes the Best Covering
For Concrete Walls
and Ceilings**

Write for Samples and
Particulars

**WISCONSIN
LIME &
CEMENT CO.**

Selling Agents and
Distributors for Central States
607 Chamber of Commerce
Chicago, Ill.

Tell 'em you saw it in ROCK PRODUCTS



in the
Lime Light

"Universal"

In the "lime" light of experience—i. e.—in the light of **lime** experience, the careful builder of the present will eschew all suggestion of familiar lime troubles by building his plastered walls with modern hard plasters and particularly by **finishing** with

UNIVERSAL

The Finish Without Lime

No plastered wall is as good as it might be, which is not bulided with U. S. G. Hard Plasters **and finished with "Universal."**

No Architect who desires to maintain a distinguished place and prestige in his profession, can afford to neglect specifying "Universal" for the final plaster coat—particularly in the better class of residences and buildings.

No Contractor who values the **net economy** of a good job well done, can afford to disregard the specification of "Universal."

No Builder who wants things right, will jeopardize the life and beauty of his expensive mural decorations, by not insisting on an "Universal" finish—when he knows about it, and the majority of good builders do.

No Material Dealer Can Afford

not to carry and actively push "Universal"—if he be building his business for the future—if he value the reputation of being modern and alert—if he desire to hold old customers and **create new business with new commodities**—if he desire to **eliminate stock shrinkage** and **make more money with less labor and expense** on finishing materials.

We Help The Dealer Sell "Universal"

by supplying him generously with the snappiest, brightest kind of instructive and convincing Advertising Matter—a class of Advertising Literature such as will do him credit, when put into the hands of the most select home owners, bearing his own advertisement.

For instance—Write us Today for copy of the little "Universal" Booklet, "Here's Your Finish." Do this—it's good money in your pocket. Address our nearest office.

United States Gypsum Company

NEW YORK

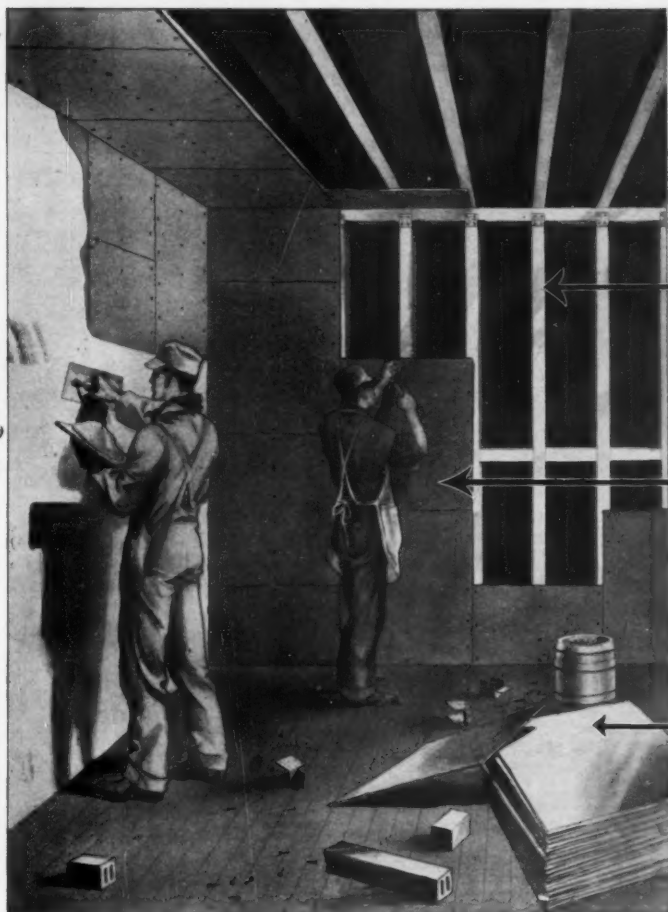
CLEVELAND

CHICAGO

MINNEAPOLIS]

SAN FRANCISCO

Tell 'em you saw it in ROCK PRODUCTS



"Show Me!"

That's

Gypsinite

instead of Wood Studding

That's

Plaster Board

Better and Quicker than Lath

That's

A Small Compact Pile

Easy to Handle—Easy to Work With

Isn't It Better?

Isn't it better for a builder to fireproof his building instead of merely lathing it? Especially when he can do it so much quicker and at no greater cost than lathing, and get a better plastering job at less cost at the same time?

Isn't it better for him to save time in building by nailing on a few Plaster Boards instead of a "legion of lath"?

If it is better—which it certainly is—and if the building public knows of these advantages—which it certainly does—then,

Isn't it better for you, as a Material Dealer, to handle and push

The Gypsinite-Plaster Board System of Fireproofing

in preference to troublesome lath? Our Plaster Board is Fireproof, and is a great Time, Labor and Plaster saver in building. Combined with our Fireproof Gypsinite, it affords the lightest, strongest, most efficient, most economical fireproofing system known for general building purposes.

Strong Selling Features these; and considered in connection with the Uniform Prices, Uniform Profits, Uniform Quality and Uniformly Certain and Prompt Shipments—well?

Isn't it better to inquire than to miss a good thing? For information, Quotation, Literature, address our nearest office.

Sackett Plaster Board Co.

New York City

Chicago, Ill.

Garbutt, N. Y.

Grand Rapids, Mich.
Fort Dodge, Ia.

Tell 'em you saw it in ROCK PRODUCTS

CUMMER CONTINUOUS PROCESS

FOR

**CALCINING
GYPSUM**NO KETTLES
USEDPLANTS IN
OPERATIONGreat Saving in Cost of Manufacture and Quality of
Product Guaranteed.

The F. D. CUMMER & SON CO., Cleveland, O.

Plaster! Plaster!**Iowa Hard Plaster Co.**HARD BY NAME. HARD BY NATURE.
HARD TO BEAT. NOT HARD TO GET.**Iowa Hard Plaster Co.** FT. DODGE
IOWA**Stucco
Retarder**Strong
Uniform
Fine Ground**RETARDER**We are the oldest Retarder firm
in the United States, and above
is our motto. New fire-proof
plant and prompt service.FREE SAMPLE ON REQUEST**Chemical Stucco Retarder Co.**

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INCORPORATED 1893

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A. V. Bleininger. Price \$1.25.

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Anson Marston. Price \$1.00.

ROCK PRODUCTS, 355 Dearborn Street, CHICAGO

Tell 'em you saw it in ROCK PRODUCTS

ANNOUNCEMENT

We are just closing our second year and are pleased to say, the high quality of our various products, together with our unexcelled service, has made so many friends for the "NIAGARA" brand of

Wood Fiber Plaster
Neat Cement Plaster Sanded Wall Plaster
Finishing Plasters Stucco

that it has been necessary to increase the capacity of our Oakfield Mills. This has been done, and we therefore offer our many patrons and the trade generally **QUALITY, SERVICE** and **CAPACITY** sufficient to enable us to handle any volume of business promptly, and we would appreciate your order.

NIAGARA GYPSUM COMPANY

Mills: Oakfield, N. Y.

Office: Buffalo, N. Y.

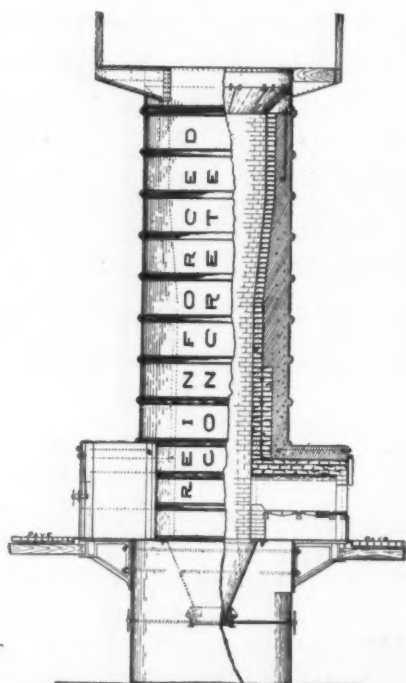
RETARDER Wood Fiber

THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO

Reliable Stucco Retarder=Strong=Uniform in Strength=
Duplicate power plant (electric and steam power) installed so as to preclude any possibility of shut down and consequent shut down of mixers who depend upon us for their supply of Retarder. We have a capacity large enough to supply every retarder user in the U. S. and Canada, and some to spare for Europe. Our mills are fireproof in every particular. Write us for prices and information.

THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO

Tell 'em you saw it in ROCK PRODUCTS

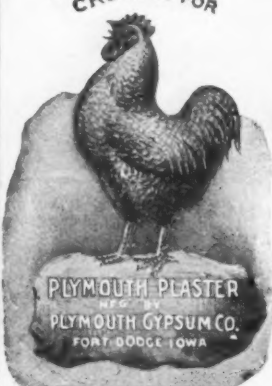


Broomell Reinforced Concrete Lime Kiln

Most perfect kiln in the world. Concrete is placed in steel forms, which are leased for such length of time as may be necessary. By this plan kilns superior in every way can be built at a low cost. Send for descriptive circular.

A. P. BROOMELL, Manufacturer, YORK, PENN.

CROWING FOR



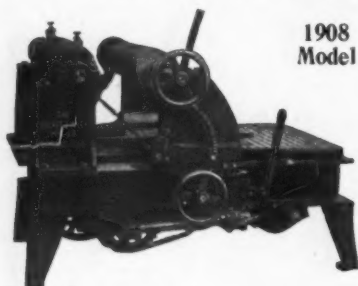
PLYMOUTH CEMENT
AND
WOOD FIBER PLASTER

The Brand that's Made from Pure Gypsum Rock.

WRITE US FOR PRICES AND ADVERTISING MATTER.

Plymouth Gypsum Co.
Fort Dodge, Iowa

The Shuart-Fuller Improved Fiber Machine



1908 Model

Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

The Shuart-Fuller Mfg. Co.

ELYRIA, OHIO

St. Louis, June 17, 1907.

THE SHUART-FULLER CO., Elyria, Ohio.
Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine

ACME CEMENT PLASTER CO

By Jas. R. Dougan, Sec.

DOES IT PAY?

THE Concrete Sand and Stone Co., of Youngstown, Ohio, is running a full page advertisement monthly in ROCK PRODUCTS. Here's what Manager A. A. Pauly says about it: "We get enquiries from all over the world and are satisfied that ROCK PRODUCTS has been instrumental in aiding our business materially, because during most of our business career it is the only paper we have used."

"We consider that ROCK PRODUCTS reaches the people, and is in close personal touch with the men 'behind the guns.' We have recently closed a contract with Buenos Ayres manufacturers which already amounts to \$30,000, and probably will exceed five times this amount, as a direct result from our ad. in ROCK PRODUCTS."

"We figure that the personal cooperation of your editorial and field forces has been instrumental with our general publicity in ROCK PRODUCTS, in placing several hundred thousand dollars worth of business."

Does It Pay?

Ask Mr. Pauly. His address is Youngstown, Ohio. There are others of whom similar information may be obtained. Lots of 'em. We'll tell you about them later.

Rock Products

355 Dearborn Street,

CHICAGO

Tell 'em you saw it in ROCK PRODUCTS

Concrete Blocks

Highest Attainment of the
Concrete Industry

MADE BY CENTRIFUGAL FORCE

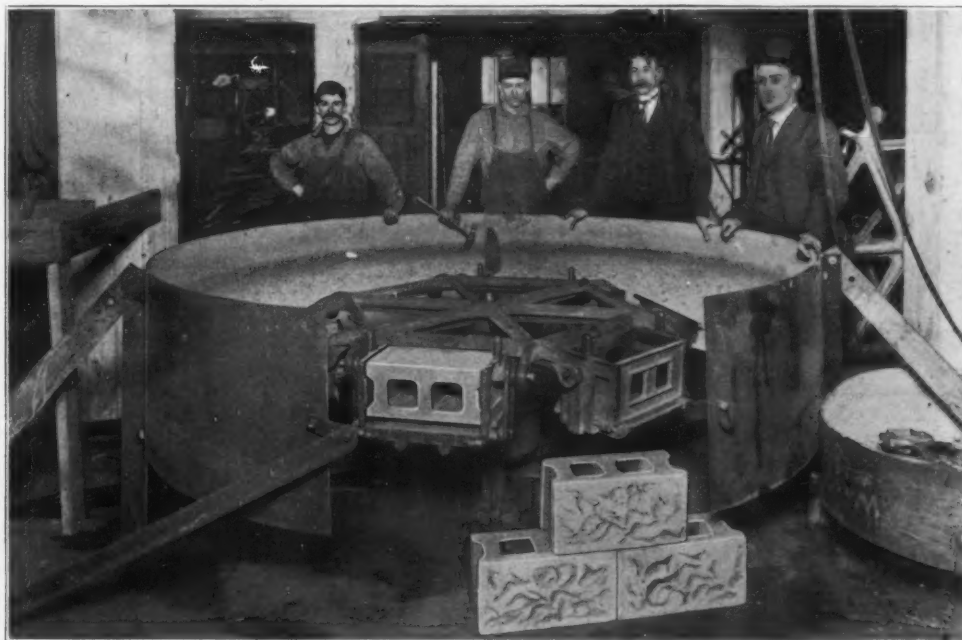
Strictly a High Class Factory Proposition

Speedy and Economical.

The machine does all the work except the original mixing and piling up the finished product.

No Tamping

The mixture is poured into the moulds, then revolved rapidly, producing a pressure of thousands of pounds, **uniformly**, on every part of the block. The excess water is then extracted as a fine mist, and in about sixty seconds the blocks are ready to be removed from the moulds.



This machine makes 600 blocks in a 10-hour day, 8"x8"x16"

The Way it is Done.

Take a Wet Slush Mixture of Portland Cement with any suitable aggregate and after a thorough mixing pour into the moulds successively until all are filled. Then throw the belt upon the service pulley for one minute or less at a high speed with the development of tremendous pressure in the fully perfected Centrifugal Machine. Remove the finished blocks from the molds and leave them on the pallets for a few hours. The blocks are then ready for storage in the yard or can be used in the wall within 12 hours. Fully protected by patents. Standard size machines in operation more than 2 years.

SEE OUR EXHIBIT AT THE CHICAGO CEMENT SHOW
Balcony, Space 270 South End

Centrifugal Concrete Machine Company

805 Corn Exchange Bank Bldg., CHICAGO, ILL.

Tell 'em you saw it in ROCK PRODUCTS

The Reason Why

THERE is a specific reason WHY you should purchase the Schenk Cement Drain Tile Machine—a specific reason WHY the Schenk should operate in your factory. Put into the plainest possible English, the reason WHY is that the Schenk operates in more factories than all other makes combined. You are not to compare it with other machines, for it is the pioneer, it has stood the test, it has passed the experimental stage and is a positive and established success—that is the reason WHY.

This year we have an extraordinary good proposition for two hundred (mind you, only two hundred) good, live, energetic concrete men who wish to estab-

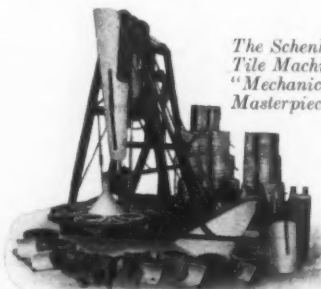
lish themselves in a paying business with but a small investment. Your name on a postal card entitles you to the inside facts—mail it to-day.

Our Machinery will not be on exhibition at the Chicago Cement Show, but come anyway and have a talk with our representative at booth No. 256.

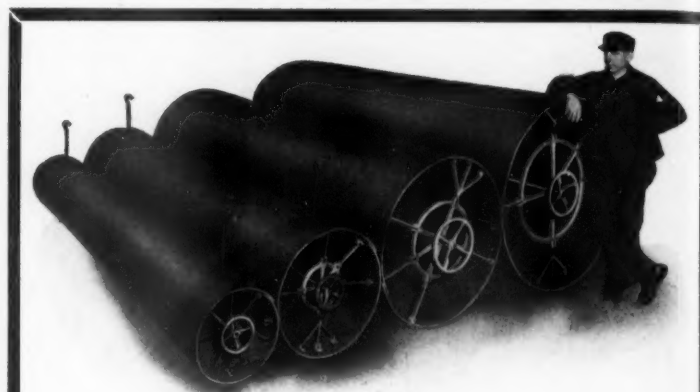
**The Cement
Tile Machinery Company**

740-45 Rath Street

WATERLOO, IOWA



*The Schenk
Tile Machine
"Mechanical
Masterpiece"*



BIG MONEY

In Making Sewers, Culverts and Conduits

WITH

Miracle Collapsible Steel Forms

The work can be done faster, and when finished the surface is smoother than when it is made with the old style wooden forms.

Contractors can take County jobs to make bridges and culverts and make big profits on the work. Others have done it and you can do it. The mechanism is simple and reliable.

Write to-day for Catalog Z, telling all about these forms and how you can increase your business and enlarge your profits by using them.

Miracle Pressed Stone Co.

MINNEAPOLIS, MINN.

McIntosh Automatic Sand-Cement Brick Machine

Weight, 11 tons.

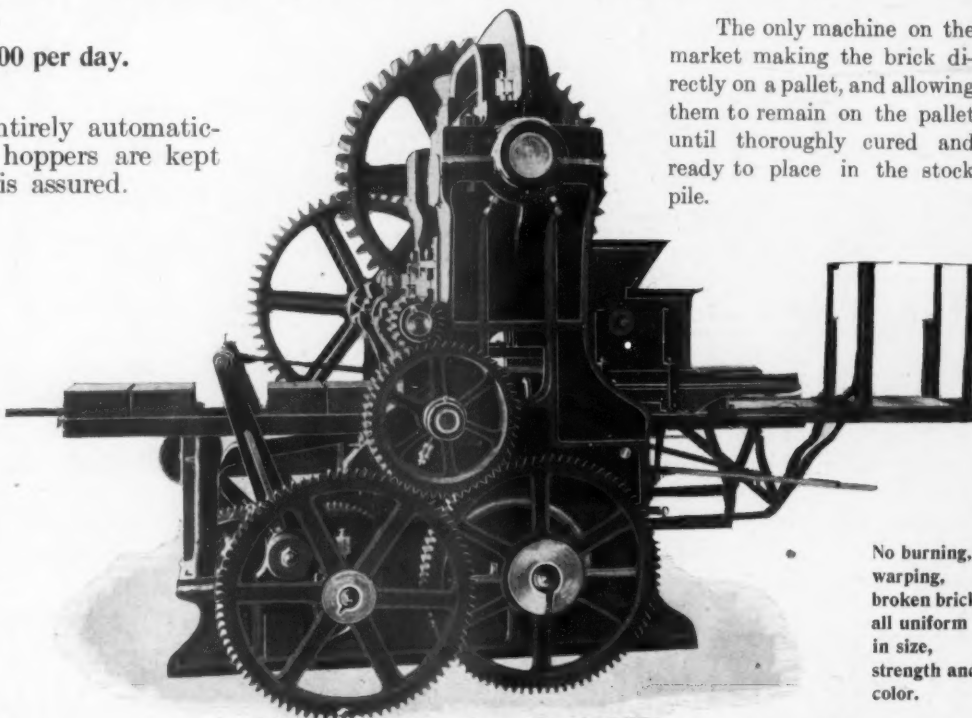
Guaranteed Capacity, 20,000 per day.

As the McINTOSH works entirely automatically, if the material and pallet hoppers are kept supplied, the guaranteed output is assured.

Makes eight (8) brick on a pallet
at each revolution, and puts the
same TREMENDOUS PRESSURE
on every brick. ∴ ∴ ∴

Send us the cost of Sand, Cement and labor in your vicinity and we will give you the approximate cost of manufacturing SAND-CEMENT BRICK with our equipment.

Write for our new catalogue describing our machine and the complete installation of a modern Cement Brick Plant, also valuable information regarding the manufacture and curing of Cement Brick.



The only machine on the market making the brick directly on a pallet, and allowing them to remain on the pallet until thoroughly cured and ready to place in the stock pile.

No burning,
warping,
broken brick;
all uniform
in size,
strength and
color.

Oklahoma & Texas Cement Brick Co.

OKLAHOMA CITY
OKLAHOMA, U.S.A

Tell 'em you saw it in ROCK PRODUCTS

Two New Simpson Molds

NOW READY

Lawn Vase

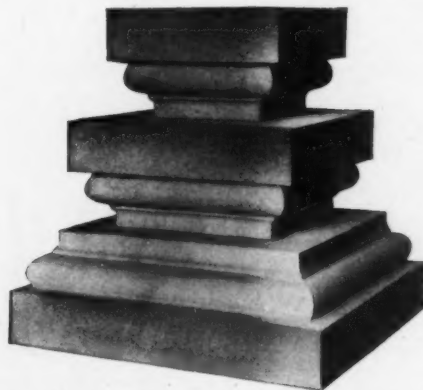
Mold No. 20V Price \$20.00



18 inches high, 21 inches outside diameter. Base 13 inches square. Core 16½ inches diameter, 11 inches deep. The vase weighs 150 pounds, and any plant, large or small, will thrive perfectly in it.

Column Base and Cap

Mold No. 101 Price \$10.00



These three blocks were made in the same mold, which is adjustable to any size from 12 inches to 22 inches square at the large end.

WE HAVE IN PRESS A BOOK

How to Build Fine Concrete Porches

which will contain full instructions upon every detail of concrete work in porches, from the ground to the roof. It has been written by a number of contractors in cement who know all about it, as they have done and are doing splendid work in this line. They tell you exactly how to carry out every feature of porch building, and also what mistakes you are likely to make and which you should avoid.

If you will write us on your own letter head or with your business card, showing that you are a cement user, we will send this Book to you, without charge, postage paid. When you write tell us whether you have our No. 2 "Concrete Porch Book," illustrating and describing Simpson Molds for making ornamental blocks.

We will make another fine display at the Cement Show in Chicago,

at the Coliseum, February 18-26. Our location is at the head of the center aisle, immediately opposite the main entrance.

The Simpson Cement Mold Co.

140 East Spring Street, Columbus, Ohio

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Anchor Concrete Block Machines

THEY HAVE STOOD THE TEST OF TIME AND MADE GOOD,
WITH A PROFIT TO THE USER, TOO.

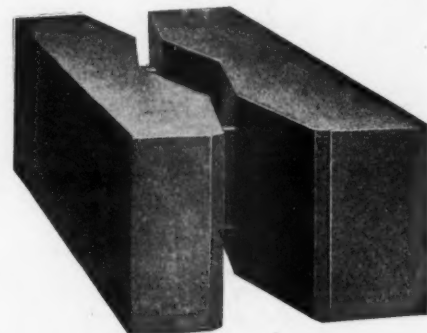


ANCHOR MACHINE IN POSITION
TO RECEIVE MIXTURE

Anchor continuous air
space blocks guaranteed
frost and moisture proof.

Anchor blocks are bound
together with firm $\frac{1}{4}$ inch
galvanized iron rods 8 inches
long and turned one inch at
each end.

Standard Anchor Ma-
chines make blocks that lay
in the wall 8 in. by 24 in.,
any width from 8 in to 12 in.



THE FAMOUS ANCHOR BLOCK.
ENDORSED BY ARCHITECTS EVERYWHERE.

Anchor Jr. Machines make blocks that lay in the wall 8 in.
by 16 in. and any width from 8 in to 12 in.

ONE ANCHOR MACHINE, PLUS ENERGY, BACKED
BY A LITTLE CAPITAL. MEANS THE PRODUCTION OF
HIGH-GRADE BUILDING ALWAYS IN DEMAND.

WRITE FOR CATALOGUE AND PRICES.

ALL MACHINES SOLD DIRECT TO THE TRADE.

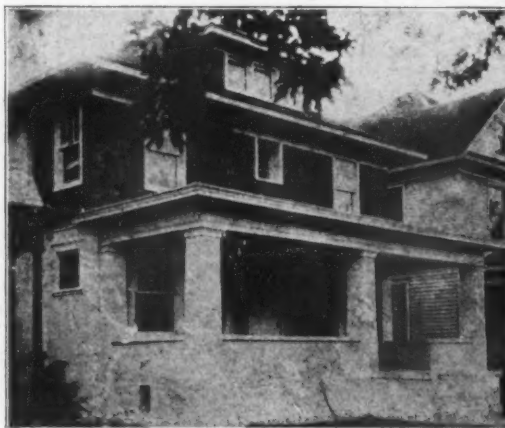
Anchor Concrete Stone Company
ROCK RAPIDS, IOWA

KELLASTONE PURE WHITE PLASTIC STONE

Applied on wood or metal skeleton frame, inside and outside walls, porch complete, steps and columns.

**Water Proof
Fire Proof
Acid Proof**

Imagine a house without a crack
or crevice. No carpets; floors and
base one piece. Rug center with
colored border.



KINTZ DWELLING, South 7th Street, Terre Haute, Ind.

Architects can let their fancy
run wild. Kellastone can be ap-
plied on any shape or form, wood
or iron. Twenty-five shades or
colors.

Branch factories will be
established throughout
the United States.

Main Factory

Address

Sanitary Construction and Manufacturing Co.
TERRE HAUTE, IND.

Main Office

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TRIUMPHANT

THE ACME OF PERFECTION AT LAST

The Improved PEERLESS One Man Cement Brick Machine

Equipped with a new tamping device which tamps ten bricks in the machine at one operation, making 12,000 perfectly formed bricks in ten hours.

The most successful and most easily operated one man brick machine ever made.

The Triumphant conquered at the Cement Shows of 1909. The applicant for new honors and more orders at the Cement Show for 1910.



Showing Peerless Brick Machine Open with the Load Standing on the Pallet, Ready to Carry Away for Racking.



Showing Peerless Brick Machine with Tampers Raised.

The Great Superiority of
Cement Brick for all general building purposes over the old fashioned clay product is now thoroughly recognized by architects and builders everywhere.

The Peerless Brick Machine
is the greatest invention in the industry. Simple, strong, durable, easily operated, it combines all the advantages of every other machine at the smallest cost. :: :: Write at once.

Peerless Brick Machine Co.
15 NORTH 6TH STREET.

Minneapolis, Minn.

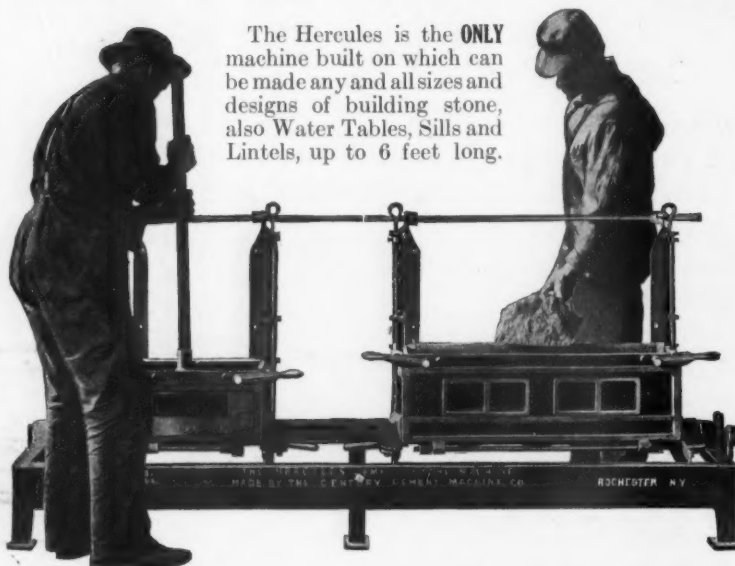
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CONTRACTORS AND BUILDERS

YOU CAN INCREASE YOUR BUSINESS AND PROFITS BY MAKING

Concrete Blocks—Good Blocks—Hercules Blocks

You can **Double** your capacity at any time with the **HERCULES**. You can make **two** blocks 20, 24 or 32 inches long at one time on **one** **HERCULES** machine or on the same machine you can make **four** 16" blocks at **one** time, making one Hercules equal to any four 16" machines of other makes or any two 20, 24 or 32 inch machines. Think what this means!



The Hercules is the **ONLY** machine built on which can be made any and all sizes and designs of building stone, also Water Tables, Sills and Lintels, up to 6 feet long.

With the Hercules machine you can make blocks better, quicker and at a lower cost than with any other machine.

**OUR CATALOG TELLS YOU WHY
SHALL WE SEND A COPY?**

IT MEANS MONEY TO YOU.

CENTURY CEMENT MACHINE CO.

288-298 St. Paul St.
ROCHESTER, N. Y.

SYSTEMATIC CONCRETE MIXER

28 Advantages—Unequaled. WON 180 different times in competition.

For any proportion, any material, lock proportions with Yale lock and key. Horizontal drive, high wheels, low hoppers, cement hopper holds 1½ bbls. hard metal paddles, 10 gauge steel mixing barrel, steel axles, best engine made. See it at Space 181 and 182, counting Chicago Cement Show, Feb. 18 to 26, 1910. Also see Cheapest and Best Block and Brick Machines made.

The **SYSTEMATIC** leads. Investigate and Profit thereby. Get new Catalog "R."



1910 Model Now Ready

**CEMENT
MACHINERY CO.
JACKSON, MICH.**

Perfection at Last Attained in the Concrete Block Industry

The **Perfection Power Block Machine** is the only Power Block Machine on the market, making a Hollow Concrete Building Block under Heavy Pressure and at Great Speed.

Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

The machine handles sand, gravel, crushed rock, slag and coloring materials perfectly.

All materials accurately measured, thoroughly mixed and uniformly pressed under 200,000 pounds pressure.

Makes 8, 9 and 12x8x24 inch blocks in five faces, and fractional and angle blocks. Machine can be arranged to make Two Piece and Faced Blocks if desired.

All machines delivered, set up and put in operation to show a guaranteed capacity of 60 blocks (12x8x24 inch) per hour with five men.

Blocks perfectly cured in 24 hours in Vapor Curing Kilns of our own design. Full details, catalog, testimonials, etc., sent upon request.

**THE PERFECTION BLOCK MACHINE CO
SIOUX FALLS, SOUTH DAKOTA.**

PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

**Wet Process, Face Down,
Damp Curing.**

The **PETTYJOHN INVINCIBLE** Machine does this, and is the only machine that does. Tandem Invincible makes two blocks at once. Price \$65.00 and up. Single Invincibles, \$35.00 and up. With our Triple Tier Racking System green blocks can be stacked three high direct from machine with inexpensive home-made rigging. Plans and blue prints free to customers. It economizes space, reduces off-bearing distance and above all insures slow, even, damp and perfect curing and bleaching.

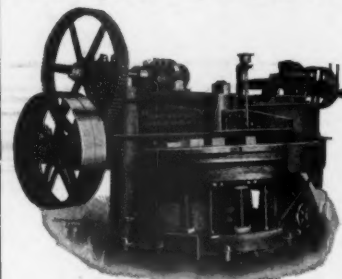
Write for our latest edition of "Stone Making," a book of valuable data, just off the press—FREE

THE PETTYJOHN COMPANY

614 North Sixth Street Terre Haute, Indiana

The American Sandstone Brick Machinery Co.

SAGINAW, MICH.



Improved Saginaw Rotary Press.

Built either right or left handed in three sizes of capacities of 800, 1400 and 2200 brick per hour. Can be equipped with extra table for making face and fancy brick on which double pressure is exerted.

Complete Sandstone Brick Plants or Partial Equipments Installed Under Absolute Guarantees as to Capacity, Quality, and Cost of Production.

We are the oldest manufacturers of Sand Lime Brick Machinery in the U. S. today, and have more successful plants in operation than any other Company. Why not profit by our experience? Send us samples of your sand and let us advise you as to its quality for brick purposes and what machinery you will require to produce the best results. Write for catalogue "C" describing our system in detail.

Tell 'em you saw it in ROCK PRODUCTS

W. M.

Sa

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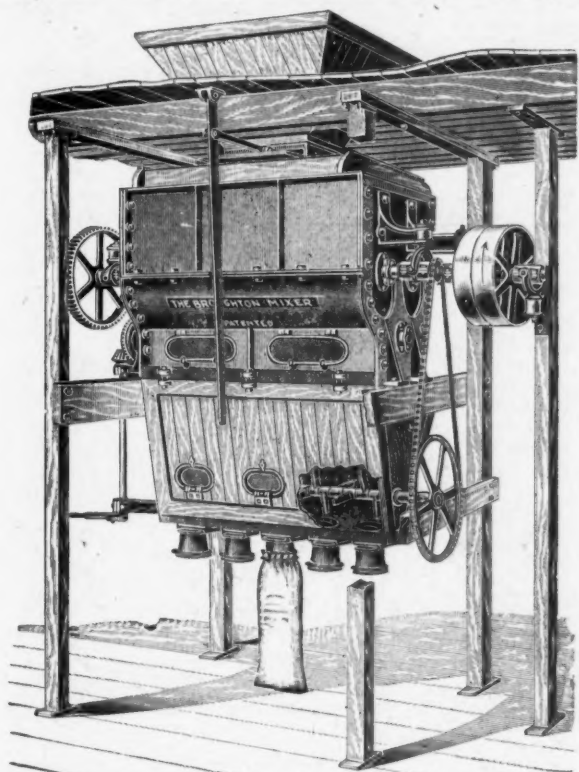
We ha
it all in
quality
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or will
Our ca
full line

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and ap
Cement
Appara
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therefor

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WILL



The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N. Y.

Track AND Cars



OUR STEEL CARS

Stand in a class by themselves. They are manufactured by special machinery and combine the latest ideas of design and construction. We are in a position to build special material. **LARGE STOCK** of industrial Track, Frogs, Switches, Turntables, complete track layouts, cars, etc. Prompt shipment of all equipment. Our Catalogue 17 is full of illustrations and gives dimensions and other valuable information—it will be sent on request.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
ERNST WIENER
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196 Fulton St., NEW YORK, N. Y.

Agents for Industrial Locomotives for the Baldwin Locomotive Works.

BRANCH OFFICES:

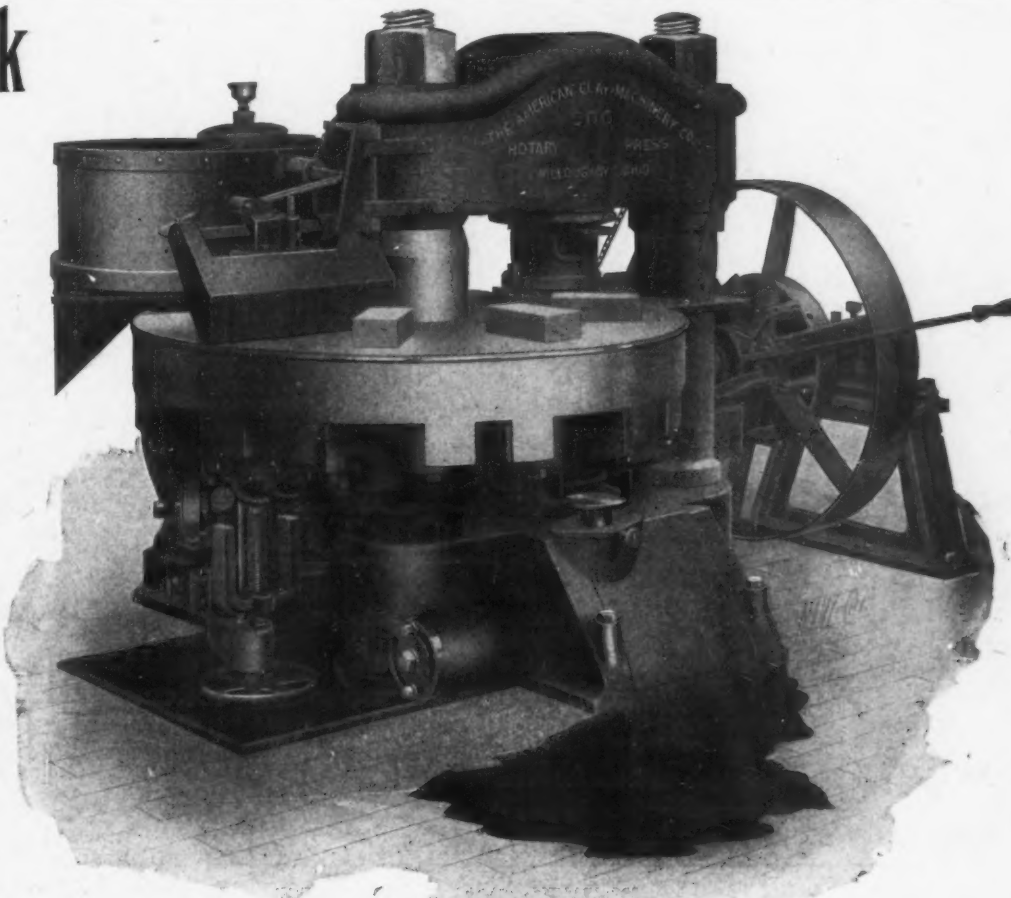
Boston 141 Milk St. Los Angeles, Cal. 106 W. 3d St.	Chicago, 1540 First National Bank Building Denver, Col. Cooper Bldg. Norfolk, Va. 180 Water St.	Pittsburg, 419 Park Bldg. San Francisco, 302 Second St. St. Louis, Mo. 543 Security Bldg.
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Sand-Lime Brick Machinery

OUR Sand-Lime Brick Machinery is at least a little better than any other. We have testimonials to show it. We build it all in our own factory and are sure of its quality. We are the only firm doing this. We will design and equip your entire plant or will sell you parts of your equipment. Our catalog describing and illustrating our full line will be sent upon request.

We also build a full line of machinery and appliances for making Clay Products, Cement and Pottery, Dryers and Dryer Apparatus.

Everything we sell we make. We therefore know its quality to be right.

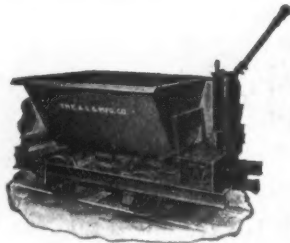


The American Clay Machinery Company

WILLOUGHBY, OHIO, U. S. A.

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WE BUILD
CARS
FOR



No. 217-E
Side Dump Car
Equipped with Motor

QUARRIES,
MINES,
CEMENT
WORKS
AND
GENERAL
USE



No. 277
Steel Mines and Quarry Car



No. 145-C
Pressed Steel Top, Ball Bearing
Turntable; Patented

SWITCHES,
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Steel Dumping Bucket

RAIL,
TURNABLES

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO.

GIANT PORTLAND CEMENT



An unsurpassed record
of 25 years.

(Send for our booklets.)

American Cement Co.
PHILADELPHIA



None Just as Good.



None Just as Good.

Everyone knows the attractiveness and value of concrete as a building material, but not everyone knows the importance of getting the right brand of cement.

ATLAS PORTLAND CEMENT

produces uniform work of the best quality. It is not good in one spot and bad in another; it is all good, all equally good, all the same. It produces a building as permanent, lasting and durable as stone. It gives you a one-piece house, every inch of which is fire-proof and sanitary. It is a delightful building material, a logical one and a typical American one. Only be sure you get the right cement—ATLAS—the cement of which the United States Government bought 4,500,000 barrels for use in building the Panama canal.

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"Concrete Houses and Cottages," Vol. I—Large Houses, \$1.00; Vol. II—Small Houses, \$1.00	"Reinforced Concrete in Factory Construction," delivery charge, -	\$0.10
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If your dealer cannot supply you with ATLAS, write to

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LARGEST OUTPUT OF ANY CEMENT COMPANY IN THE WORLD—OVER 50,000 BARRELS PER DAY.

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